Round 1

Behavioral and Biologic Surveillance Survey Zambia

Female Sex Workers

EXECUTED BY:
Tropical Diseases
Research Centre

ADMINISTERED BY:
National AIDS Council
Ministry of Health
Zambia

WITH TECHNICAL ASSISTANCE FROM:
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EXECUTIVE SUMMARY

Background

Zambia is one of the countries hardest hit by the HIV epidemic. HIV rates are particularly high along major highways and border posts. In 2000, a project was initiated with truck drivers and female sex workers (FSW) at five of the major border posts and truck stops -- Livingstone, Chirundu, Chipata, Kapiri-Mposhi and Kasumbalesa. The project is implemented by World Vision International in collaboration with other institutions and aims at behaviour change through outreach and peer education, social marketing of condoms and improved sexually transmitted infections (STI) care.

As part of the project, behavioural and biological outcomes are to be evaluated by repeated surveys. Behavioural surveillance is planned annually in both FSW and truck drivers in three of the five sites, using the methodology of the *Behavioural Surveillance Survey'* (BSS) developed by Family Health International (FHI). Biological impact is measured by a baseline and end-of-project survey of the prevalence rate of the major STI in FSW. The Tropical Disease Research Centre (TDRC) was contracted to implement the surveys with technical assistance from FHI's IMPACT project. The main objectives of the first round of the behavioural survey and the baseline biological survey were (1) to provide baseline data for the measurement of the impact of the combined HIV prevention efforts, (2) to provide information to help the programme planning, and (3) to help establish a monitoring system that will track behavioural trend data for high risk and vulnerable target groups that influence the epidemic in Zambia.

Methodology

At the three selected sites, Livingstone and Chirundu at the Zambia-Zimbabwe border and Chipata at the Zambia-Malawi border, all locations where FSWs congregate were listed. All locations were visited between February and April 2000 from 10:00 p.m. onward and all sex workers who consented were interviewed on the spot or during an appointment at another place and time. The interviewers administered a standardised questionnaire, adapted from the prototype developed for the BSS, in a private setting followed by witnessed consent for the collection of biological specimen.

The collected specimens included two self-administered vaginal swabs and a venous blood sample. One vaginal swab was inoculated into the *InPouch* culture medium for *T. vaginalis* and examined by microscopy at 12, 24 and 48 hours post-incubation. The other vaginal swab was directly placed in a cryovial, frozen and shipped to the Institute of Tropical Medicine (ITM) in Belgium for testing for *N. gonorrhoeae* and *C. trachomatis* using DNA amplification tests. Syphilis infection was identified serologically with a quantitative rapid plasma reagin (RPR) screening test, confirmed with a *T. pallidum* hemagglutination assay (TPHA).

All sex workers were invited to present at a selected clinic the next day for a physical exam and enrolment in the STI care component of the project. They received treatment based on algorithms specifically designed for sex workers, free condoms and appropriate counselling. All women were asked to return to learn the results of their syphilis serology and *T. vaginalis* culture and to be treated accordingly.

Results

In total 636 women were contacted and recruited, 267 at Livingstone, 145 at Chirundu and 224 at Chipata. Of these 624 (98%) had sufficient questionnaire data and 579 (91%) provided biological samples.

The study population was a very young one, with a mean age of 23 years and a high proportion (37%) of teenagers. Most (81%) had completed at least primary school (7th class) and were not married and living alone (69%), although almost half (48%) had ever been married. The distribution by ethnic group and religion was similar to that of the general Zambian population.

The population was a mobile one with 46% original from a province other than the one currently residing in and a median period of current residence of 5.9 years. One third (33%) reported to have an occupation other than sex work. More than half (58%) said they were supporting others.

The median age of sexual debut was 15 years and of starting sex work 17 years. Almost all women (99.5%) reported to have done sex work elsewhere before. The median time period of sex work in the current residence was 1.7 years. The median number of sexual partners in the last 7 days was 3. Most of these were paying clients (median 2). The median number of clients on the last day worked was 1. Only a small proportion of the women (6%) saw a high number of clients (more than 3) per day. The median price per client was 20,000 Kwacha (equivalent to 7 USD).

Slightly more than half of the women (54%) claimed to have used a condom at the last sexual contact with a paying client. The most frequent reasons mentioned for not using a condom were that the client objected (36%), that they themselves didn't like it (21%) or that they didn't think of it (21%). When asked how regular they used condoms with clients over the last 30 days, 25% claimed to use condoms every time or almost every time, 59% sometimes and 17% admitted to never use condoms.

Half (50%) of the women reported a non-paying partner in the last seven days. The median frequency of sexual intercourse with this partner was 4 times in the last 30 days. Less than half (44%) had used a condom at the last sexual intercourse with this partner and the majority reported to have used condoms with their non-paying partners during the past 12 months only sometimes (66%) or never (18%). More than one third (37%) of the women who have a non-paying partner reported that they were forced to sexual intercourse in the past 12 months by any of their sexual partners.

Most women reported to have ever used a male condom (89%) and reported that they could obtain condoms in less than 1-hour time (94%). The places where condoms can be obtained most often mentioned were shops (72%), a clinic or hospital (65%), a bar, guesthouse or hotel (52%) and the market (46%). Most of the women however, did not have any condoms at hand at the time of the interview (77%).

The female condom was lesser known by the women, although 60% had already heard of them. Of these, 19% had already used the female condom and 49% knew where to obtain them.

Most women (96%) had ever heard of 'diseases that can be transmitted through sexual intercourse'. Seventy two percent of these women could mention at least two symptoms of sexually transmitted diseases (STD) in women and 61% could mention at least two STD symptoms in men.

About one third of the women (36%) reported to have had either a genital discharge (24%) or genital ulcers or scores (28%) in the past 12 months. Three quarters (76%) of these sought advice at a health facility. Almost half (47%) sought advice from a traditional healer, 26% from a pharmacist, 24% bought capsules on the street and 27% took medicines at home. Less than half (43%) said they told their partner, 33% stopped having sex and 23% used condoms while symptomatic.

Less than half (45%) of the women reported to use any family planning method. Of those who reported using a family planning method, only 59% used a method considered as effective for family planning. About one third of the women (32%) said they ever lost a pregnancy.

Three quarters (75%) of the women knew someone who had HIV/AIDS. The women generally knew that HIV could be transmitted by infected needles (92%) or from mother to child during pregnancy (91%). That HIV could also be transmitted through breastfeeding was a little less known (82%). Still 22% of the women thought mosquito bites could transmit HIV, and 9% believed sharing meals was sufficient to get infected. Most women (93%) were aware that a healthy looking person could be infected with HIV. About fourth fifths of the women knew that HIV infection can be prevented by condom use (81%), faithfulness (80%) or abstinence (84%). Only 17% of those who knew that HIV could be transmitted from mother to child also knew that treating pregnant infected women could prevent this infection.

About two thirds of the women (66%) reported to have access to an HIV voluntary counselling and testing facility. Twelve percent said to have ever been tested. Of these, about half (47%) said it was not on a voluntary basis, and one quarter (25%) never found out their result.

Five behavioural indicators were defined as project indicators. Indicator 1 measures knowledge of STI symptoms (61% of the women could at least cite two major STI symptoms in women), indicator 2 measures knowledge of HIV prevention (85% could mention at least two HIV prevention strategies), indicator 3 measures condom availability (96% reported easy access to condoms), indicator 4 measures condom use with clients (54% of the women reported that they used a condom in the last commercial sex act) and indicator 5 measures condom use with regular partners (44% reported that they used a condom in the last sex act with a non-paying partner). All indicators were statistically significant ($p<0.05$) different by site. The women in Chipata performed consistently better than in the two other sites.

The prevalence of gonorrhea, genital chlamydial infection, reactive syphilis serology and trichomoniasis was 19.9%, 6.7%, 29.3% and 48.9%, respectively. The prevalence of gonorrhea and syphilis was higher in Livingstone than in the other sites (23.2% and 36.5% respectively in Livingstone, 19.8% and 20.9% respectively in Chirundu and 28.7% and 16.0% respectively in Chipata).

Discussion and conclusions

The main findings of the survey were: (1) the very high proportion of teenage sex workers, (2) the very high prevalence of curable STI, (3) the relatively low average number of clients, (4) the good availability of condoms, (5) the high levels of knowledge related to HIV, (6) a moderate level of condom use and (7) poor family planning practices.

The WVI project should focus on enhancing condom use, both male and female, through peer and other education programs with the sex workers, their clients and their regular partners.

Knowledge and care seeking for STD symptoms could be improved by regular visits to trained health care providers in selected health facilities where access barriers have been reduced. These health facilities should also develop activities to enhance sex workers' use of family planning. The possibility of offering HIV VCT facilities should be explored further.

List of Abbreviations

BSS	Behavioral Surveillance Surveys
CMAZ	Church Medical Association of Zambia
DHS	Demographic and Health Survey
FHI	Family Health International
FP	Family Planning
FSW	Female Sex Workers
HIV	Human Immunodeficiency Virus
IMAPCT	Implementing AIDS Prevention and Care Project
ITM	Institute of Tropical Medicine
JICA	Japanese International Cooperation Agency
NACP	National AIDS Control Program
NGO	Non-Governmental Organization
SFH	Society for Family Health
STD	Sexually Transmitted Diseases
STI	Sexually Transmitted Infections
TDRC	Tropical Disease Research Centre
USAID	United States Agency for International Development
VCT	Voluntary Counselling and Testing
WVI	World Vision International

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1. INTRODUCTION

Zambia is one of the countries hardest hit by the HIV epidemic. The 1998 antenatal surveillance found HIV prevalence rates of 27 percent in Zambia's major cities[1]. A Ministry of Health expert group estimated that provincial adult HIV prevalence was 26 percent in Lusaka, 23 percent in the Copperbelt and 19 percent in the Northern Province. National adult HIV prevalence is estimated to be 20 percent, which means that more than one million Zambians are infected with HIV. HIV rates are twice as high in urban areas as in rural areas.

Rates are very high along major highways and borders and in trading centres, farming and mining towns. The 1998 surveillance reported rates of 31 percent in the border town of Livingstone and 27 percent in Chipata. In neighbouring Zimbabwe, very high rates are also observed in border towns. HIV rates among pregnant women are 60% in Beitbridge on the South African border and 45% in Victoria Falls on the Zambian border. Zambia's major highways run alongside the two major rail lines, from Livingstone to Kasumbalesa and from Kapiri Mposhi to Nakonde. Its major trucking borders are Chirundu, Livingstone, Chipata, Nakonde and Kasumbalesa and its major internal trucking town is Kapiri Mposhi, at the junction of the two railway routes. These six sites have an estimated population of 250,000 inhabitants, including 1,500 sex workers and an itinerant population of 2,000 truckers.

Sexually transmitted diseases (STDs) are not well documented in Zambia. The number of reported STD cases rose from 190,344 in 1981 to 307,957 in 1992, the last year for which data are available. In community surveys, up to 10 percent of men report having had an STD in the past year. In a survey of 66,000 pregnant women screened in 1997 in five districts—Chipata, Kitwe, Livingstone, Lusaka and Ndola—10 to 15 percent, with a mean of 12 percent, had syphilis. In a recent community based survey in Ndola, prevalence rates for gonorrhoea and genital chlamydial infection were approximately 2% in the general population and as high as 15% for gonorrhoea and 9% for genital chlamydial infection in female sex workers. Prevalence rates for trichomoniasis and syphilis were 29% and 14% respectively in the general population and 42% for both in sex workers[2]. This confirms that sexually transmitted diseases remain a major public health problem in Zambia.

Data from the Demographic and Health Surveys (DHS) and other Knowledge, Attitudes and Practices surveys show that, although sexual behaviour seemed to have positively changed in the early 1990s, it has stagnated over recent years[3]. In a nation-wide sexual behaviour survey performed in 1998, 97% of men and 92% of women had heard of condoms and 90% and 76% respectively knew where to obtain them, but only 42% and 21% respectively had ever used condoms. Only 29% of men and 19% of women who had a non-regular partner in the last year used a condom at their last intercourse[4]. In a survey conducted with female sex workers in Ndola in 1997-1998, only 28% reported using condoms in their most recent contact with a client[2].

[1] US Bureau of the Census, HIV/AIDS Surveillance Data Base, June 2000 release

[2] Morison L, Weiss HA, Buvé A, et al. Commercial Sex and the Spread of HIV in four Cities in Sub-Saharan Africa. AIDS. In press.

[3] Bloom SS, Banda C, Songolo G, et al. Looking for Change in Response to the AIDS Epidemic: Trends in AIDS Knowledge and Sexual Behavior in Zambia, 1990 through 1998. JAIDS. 2000; 25: 77-85.

[4] Zambia Sexual Behaviour Survey 1998. Central Statistical Office, Republic of Zambia and Measure Evaluation. April 1999.

For these reasons, a project was initiated with high-risk populations at five of the major border posts and truck stops, namely Livingstone, Chirundu, Chipata, Kapiri-Mposhi and Kasumbalesa. The target populations are truck drivers passing through and female sex workers (FSW) operating around the stops. The project aims to change behaviour through peer education and social marketing of condoms, and to improve STD care. The project is implemented by World Vision International (WVI) in collaboration with the Government of Zambia, Society for Family Health (SFH), Tacintha and the Church Medical Association of Zambia (CMAZ). It receives technical support from Family Health International's (FHI) IMPACT project, and is funded by the United States Agency for International Development (USAID) and the Japanese International Cooperation Agency (JICA).

The project's impact is evaluated by repeated measuring of some behavioural and biological outcomes. A behavioural survey is conducted yearly with both female sex workers and truck drivers in three of the five sites, using the 'Behavioural Surveillance Surveys' (BSS) methodology developed by FHI. Biological impact is measured by a baseline and end-of-project survey of the prevalence rate of the major STDs among female sex workers.

In addition, the BSS is justified in its own right by the need to obtain data on behavioural trends among target populations. The data will allow the National AIDS Control Program (NACP) and other actors to follow the evolution of the epidemic and to plan their prevention activities accordingly. Monitoring the HIV epidemic and assessing the impact of HIV prevention interventions is a complex and multi-faceted process. HIV sentinel surveillance, the traditional cornerstone of a country's HIV monitoring efforts, becomes less useful as an epidemic matures. This is because HIV prevalence changes very slowly in response to behavioral changes in populations due to the chronic nature of HIV infection. Thus, HIV surveillance data cannot indicate whether prevention interventions are having their desired short-term effect of changing behaviors. Repeated behavioral surveys, on the other hand, can capture trends in behavioral change that lead to reduced HIV infection, such as fewer sexual partners and increased condom use among non-regular partners.

The Tropical Disease Research Centre (TDRC) implemented the surveys with technical assistance from FHI's IMPACT project and laboratory back up from the Institute of Tropical Medicine (ITM) in Antwerp, Belgium.

This report presents the results of the first round of behavioural surveillance and the baseline data on STD prevalence in female sex workers.

2. OBJECTIVES

1. To help establish a monitoring system that will track behavioural trend data for high-risk and vulnerable target groups that influence the epidemic in Zambia.

2. To provide information on behavioural trends of key target groups in some of the same catchment areas where voluntary counselling and testing is being offered.

3. To provide information to help guide program planning.

4. To provide evidence of the relative success of the combination of HIV prevention efforts taking place in selected sites.

5. To obtain data in a standardised format, which will enable comparison with other behavioural surveillance studies carried out in other countries.

3. METHODOLOGY

3.1. Sample sizes, sampling and survey procedures

3.1.1. Sample size.

The sample size was calculated to detect a 25% reduction in the prevalence of syphilis and trichomoniasis, and a 40% reduction in cervicitis (gonorrhoea and/or genital chlamydial infection). The baseline prevalence was estimated to be 40% for syphilis and trichomoniasis and 20% for cervicitis, based on a previous survey in Ndola. The desired change to detect was 10 percentage points for syphilis and trichomoniasis, and 8 for cervicitis. The design effect was estimated at 2. The level of precision was set at 0.05 and the power at 0.80.

Applying the data above for the reduction in syphilis yields a sample size of 558 while applying the formula for reduction in cervicitis yields a sample size of 311. Choosing the larger of the two sample sizes and adjusting for non-response and rounding up, 800 sex workers were to be sampled. The sample was divided proportionally to the populations over the two bilaterally funded sites, Chipata and Livingstone, with 400 female commercial sex workers sampled in each site. An additional 400 female sex workers were sampled in Chirundu, which is a part of the Corridor of Hope Regional Project. Although evaluation criteria for the Corridor of Hope project were not fully developed based on statistical estimations, a sample size of 400 subjects was enough to satisfy the projected needs.

3.1.2. Sampling Procedure

The selection of sites where the 1200 FSWs were selected was made according to city, since the cities included in the study contain different numbers of sites where FSWs may be found. Working through the National AIDS Control Program (NACP) and relevant Non-Governmental Organisations (NGOs) in the different cities, a list was made of locations where FSWs congregate, including the approximate number of FSWs frequenting each site per day and per night.

Originally, interviewers planned on establishing a sampling frame, using 'time-location' clusters. However, when the locations where FSWs congregate were listed and the number of FSWs at those locations estimated, it became clear that less than the desired sample size was operating at each site. In the end, interviewers used a 'take-all' approach, visiting all locations and contacting all sex workers who were present on that night, or who entered the site while the interviewer was working, to get consent for an interview.

3.1.3. Survey Procedures

The interviewers visited the chosen location on the appointed night from 10:00 p.m. onward. The interviewers contacted the women and obtained verbal consent for the interview. Each woman was offered the option of either being interviewed on the spot or making an appointment to meet at another place and time. Incentives were offered. If the woman wished to be interviewed on the spot, the interviewer offered her a drink in return for the time she was taking away from her work.

If the woman chose to meet at another time, the interviewer offered to pay the woman's transport and buy her lunch. Interviewers administered a standardised questionnaire with all consenting women in a private setting followed by witnessed consent for the biological component when biological specimens were obtained. At the conclusion, the subjects received a supply of condoms and a month's supply of vitamins to show appreciation for their participation.

Participation was voluntary and there was witnessed verbal consent given to all participants. Verbal consent was conducted in two phases first for the behavioural interview and again for the biological component. Both phases of consent were administered by the interviewer in a private setting and witnessed by the second study interviewer. The protocol, consent forms and draft questionnaires were submitted for approval to both the Zambian Ministry of Health Ethical Review Committee and the Protection of Human Subjects Committee of Family Health International.

Face-to-face interview:

The interviewer used a standardised questionnaire that was based on the BSS prototype. It included questions on socio-demographic characteristics, sexual behaviour and sex work characteristics, and knowledge, perceptions and practices regarding condoms, STDs, HIV, and HIV Voluntary Counseling and Testing (HIV VCT). A copy of the questionnaire is found in attachment 1.

Specimen collection:

A self-administered vaginal swab was inoculated into the culture medium for *T. vaginalis.* A second self-administered vaginal swab was directly placed in a cryovial and 10cc of venous blood was collected in a serum separation tube. All tubes were labelled with the subjects study number and collection date.

Physical exam and treatment:

Women were anonymously linked to their specimen by a number and asked to present at a selected clinic the next day for a physical exam and treatment. All sex workers who presented to the clinic received treatment based on algorithms designed for sex workers. All sex workers received presumptive treatment for gonorrhoea and genital chlamydial infections. Those with vaginal discharge were treated for candida infection and/or trichomoniasis/ bacterial vaginosis, depending on the clinical characteristics of the discharge. Those with confirmed abdominal tenderness and/or cervical motion tenderness were treated for pelvic inflammatory disease. Genital ulcers found during examination were treated for syphilis and chancroid. All women were asked to return to learn the results of their syphilis serology and *Trichomonas vaginalis* culture and to be treated accordingly. The choice of all drugs and dosage followed the national STD treatment guidelines. Free condoms were provided and the study staff ensured that participants were counselled regarding their STD and proper use of condoms.

Field Collection, Storage, Transport and Laboratory Analysis of Biological Samples:

T. Vaginalis: Women inserted a cotton swab into their vagina to collect a vaginal fluid sample. After collection the swab was inoculated into the upper chamber of the pouch of the *TV InPouch* test. The *InPouch* was pre-marked with the subjects study number and was put in a separate bag, not in the cool box. The bags were sealed and transported to the laboratory daily. The pouches

were examined in the laboratory of the selected clinic on arrival, incubated at 37°C and examined by microscopy at 12, 24 and 48 hours post-incubation for appropriate morphology and motility of the protozoa.

N. gonorrhoeae and *C. trachomatis*: Study participants collected a second vaginal fluid swab. The lab technician placed it into a 5cc cryovial that was immediately placed in a cold box. The cold box was kept cold with ice packs. At the end of each day, the cryovials were placed in a freezer. At the end of the survey in each site, all the samples collected in the freezer were re-packed in the cold box with ice packs and brought to Ndola where they were stored at -20C. At the conclusion of the study, all the samples collected were packed in dry ice and shipped to the Institute of Tropical Medicine in Antwerp, Belgium for further analysis. The specimens were tested for N. gonorrhoeae and C. trachomatis using a strand displacement amplification (SDA) test. Positive results were repeated with an in-house polymerase chain reaction (PCR) test and discordant results were confirmed with a third DNA amplification test, the PCR test from Roche.

T. pallidum: The lab technicians collected 10cc of blood in a serum separation tube. The tube was immediately placed in the cold box and brought to the laboratory of the selected clinic at the end of each day. There, the sera were centrifuged at 2000rpm for 10 minutes to separate the sera from the cells. After centrifugation, the blood samples were analysed with a quantitative rapid plasma reagin (RPR) screening test. Positive results were confirmed with a *Treponema pallidum* hemagglutination assay (TPHA) test to indicate both recent and past infection. The remaining sera were divided over two cryovials of 5cc. Both vials were placed in the freezer. At the end of the survey in each site, all the samples collected in the freezer were re-packed in the cold box with ice packs and brought to Ndola and stored at -20C. Twenty percent of the total serum collected was submitted to ITM for quality control and assurance. Discordant results were re-tested at ITM.

Summary of diagnostic criteria

Organism	Test	Biological Sample
Neisseria gonorrhoeae	SDA and 1 of 2 PCR positive	Vaginal swab
Chlamydia trachomatis	SDA and 1 of 2 PCR positive	Vaginal swab
Trichomonas vaginalis	InPouch Culture positive	Vaginal swab
Syphilis	RPR and TPHA positive	Sera

3.2. Data Processing and Analysis

The field supervisors checked all questionnaires and clinical data forms to be sure they were complete, then transported them with the specimens and stored them at the TDRC office. Data entry was done at the TDRC office using Epi-Info software, with data entered twice to ensure accuracy. Data analysis was performed using Epi-Info 6.04.

Data were analysed in a descriptive way only, by site. Descriptive measures, such as simple proportions, means and medians were calculated to determine the prevalence of relevant variables by site and for the total sample.

4. RESULTS

4.1. Behavioural data

In total, 636 women were contacted at the three border sites (267 at Livingstone, 145 at Chirundu and 224 at Chipata) between February 25 and April 15, 2000. Only three women (0.5%) refused to participate. For three other women, biological specimen were available, but no questionnaire. Six women had incomplete questionnaires, with only some socio-demographic data and no biological data, and were therefore excluded from the analysis. This left 624 women remaining with sufficient questionnaire data: 261 from Livingstone, 143 from Chirundu and 220 from Chipata.

4.1.1. Socio-demographic characteristics of the study population

Table 1 presents the socio-demographic characteristics of the study population by site.

4.1.1.1. Age

The mean age of the study population was 23 years with the 20- to 24-year-old age group accounting for more than a third of the women. Teenagers accounted for 37% of the population, with eight girls (1.3%) under 15 years. The youngest girls reported to be only 13 years old. The age distribution was similar in the three sites.

4.1.1.2. Education

The median number of total years of education was eight, with very few women reporting no education at all. The majority (81.4%) had completed at least primary school (which corresponds with 7th class); 48% had completed junior secondary school (9th class); and 8% completed senior secondary school (12th class). One woman reported having superior education. In Chirundu, women were slightly less educated, and in Livingstone slightly more.

4.1.1.3. Religion

Most women (98.1%) reported belonging to a church. The most frequently mentioned church was the Catholic Church (31.4%), followed by the Pentecostal Church (12.7%) and the Reformed Church of Zambia (11.5%). Also the Apostolic Church (8.3%), the United Church of Zambia (5.9%) and the Seventh Day Adventist Church (5.4%) were frequently mentioned. The distribution differed slightly by site, with the Catholic Church being stronger in Chirundu (40.6%) and the Reformed Church of Zambia stronger in Chipata (27.3%).

Table 1.1: Socio-demographic characteristics of the study population by border site

Characteristic	Livingstone		Chirundu		Chipata		Total	
Age (years)								
Mean	22.5		23.8		22.7		**22.8**	
10-14	2	0.8	0	0.0	6	2.7	**8**	**1.3**
15-19	101	38.8	42	29.6	79	35.9	**222**	**35.7**
20-24	96	36.9	51	35.9	77	35.0	**224**	**36.0**
25-29	36	13.8	30	21.1	32	14.5	**98**	**15.8**
30-34	10	3.8	11	7.7	13	5.9	**34**	**5.5**
35-39	12	4.6	4	2.8	7	3.2	**23**	**3.7**
40+	3	1.2	4	2.8	6	2.7	**13**	**2.1**
Total	260		142		220		**622**	
Total years of education								
Mean	8.3		6.8		7.7		**7.8**	
Level of education	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
None	11	4.2	15	10.6	14	6.4	**40**	**6.4**
Less then 7th class	17	6.5	31	21.8	28	12.8	**76**	**12.2**
7th class completed	94	36.0	50	35.2	65	29.8	**209**	**33.7**
9th class completed	118	45.2	37	26.1	91	41.7	**246**	**39.6**
12th class completed	21	8.0	9	6.3	20	9.2	**50**	**8. 1**
Total	261		142		218		**621**	
Religion	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
No religion	6	2.3	2	1.4	4	1.8	**12**	**1.9**
Catholic	79	30.3	58	40.6	59	26.8	**196**	**31.4**
United Church of Zambia	19	7.3	7	4.9	11	5.0	**37**	**5.9**
Seventh Day Adventist	15	5.7	7	4.9	12	5.5	**34**	**5.4**
Reformed Church of Zambia	7	2.7	5	3.5	60	27.3	**72**	**11.5**
Pentecostals	38	14.6	20	14.0	21	9.5	**79**	**12.7**
Apostolic Church	28	10.7	12	8.4	12	5.5	**52**	**8.3**
Other Church	69	26.4	32	22.4	41	18.6	**142**	**22.8**
Total	261		143		220		**624**	

4.1.1.4. Marital situation

Of the total study population, 48% of the women said that they had been married. This proportion was higher in Chirundu, where almost two-thirds of women (66.2%) had been married. Only 6.8% of the women said they were currently officially married, of which less than half (2.6%) was also living with the spouse. In total, 71.3% of the women were living alone at the time of the study. This proportion was the highest in Livingstone (83.1%) and the lowest in Chipata (54.1%).

For those who reported having been married, the median age at marriage was 18 years. Of those currently married, 69.4% reported that their spouse had other wives.

Table 1.2: Socio-demographic characteristics of the study population by border site (continued)

Characteristic	Livingstone		Chirundu		Chipata		Total	
Ever married	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	118	45.2	94	66.2	88	40.4	**300**	**48.3**
Total	261		142		218		**621**	
Marital situation	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Married, living with spouse	7	2.7	3	2.1	6	2.7	**16**	**2.6**
Married, living with other	4	1.5	1	0.7	5	2.3	**10**	**1.6**
Married, living alone	5	1.9	4	2.8	7	3.2	**16**	**2.6**
Not married, living with someone	33	12.6	30	21.0	90	40.9	**153**	**24.5**
Not married, living alone	212	81.2	105	73.4	112	50.9	**429**	**68.8**
Total	261		143		220		**624**	
Age at marriage[1]								
Mean	19.4		18.1		18.6		**18.8**	
Total	114		90		88		**292**	
Spouse having more than one wife[2]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	8	53.3	5	71.4	12	85.7	**25**	**69.4**
Total	15		7		14		**36**	

[1] Only those ever married are included
[2] Only those currently married are included

4.1.1.5. Ethnic group

The distribution by ethnic group differed from one site to another. In Livingstone, the most common ethnic group was Lozi, in Chirundu, Tonga and in Chipata, Nsenga or Nsoni. However, not all common ethnic groups of Zambia were listed. In both Chirundu and Chipata, a significant proportion of the women said that they belonged to an ethnic group other than the groups listed (41.3% and 36.5% respectively).

4.1.1.6. Residence

A significant proportion of women reported that they were born in a province other than the one they currently reside in. Only 64%, 43% and 50% in Livingstone, Chirundu and Chipata respectively reported to be born in their province of residence. The median period of current

residence was also rather low (5.9 years), with a clearly longer median period in Livingstone (12.5 years) than in the two other sites (2 and 4 years for Chirundu and Chipata respectively).

Table 1.3: Socio-demographic characteristics of the study population by border site (continued)

Characteristic	Livingstone		Chirundu		Chipata		Total	
Ethnic group	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Lozi	99	37.9	7	4.9	3	1.4	**109**	**17.5**
Tonga	40	15.3	30	21.0	12	5.5	**82**	**13.2**
Nsenga/Ngoni	41	15.7	18	12.6	101	46.1	**160**	**25.7**
Bemba	32	12.3	20	14.0	20	9.1	**72**	**11.6**
Lala	0	0.0	3	2.1	0	0.0	**3**	**0.5**
Lamba	3	1.1	1	0.7	0	0.0	**4**	**0.6**
Kaonde	9	3.4	5	3.5	3	1.4	**17**	**2.7**
Other	37	14.2	59	41.3	80	36.5	**176**	**28.3**
Total	261		143		219		**623**	
Place of birth	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Copperbelt province	19	7.3	22	15.4	38	17.3	**79**	**12.7**
City of Lusaka	28	10.7	35	24.5	40	18.2	**103**	**16.5**
Kabwe urban/rural	4	1.5	9	6.3	5	2.3	**18**	**2.9**
Within southern province	167	64.0	61	42.7	13	5.9	**241**	**38.6**
Within eastern province	5	1.9	3	2.1	110	50.0	**118**	**18.9**
Other	38	14.6	13	9.1	14	6.4	**65**	**10.4**
Total	261		143		220		**624**	
Time period of current residence in years	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Median	12.5		2.0		4.0		**5.9**	
<1	38	14.6	49	34.3	24	10.9	**111**	**17.8**
1	9	3.4	12	8.4	34	15.5	**55**	**8.8**
2-4	29	11.1	35	24.5	55	25.0	**119**	**19.1**
5-9	35	13.4	15	10.5	32	14.5	**82**	**13.1**
10-14	24	9.2	7	4.9	21	9.5	**52**	**8.3**
15-19	44	16.9	13	9.1	33	15.0	**90**	**14.4**
20+	82	31.4	12	8.4	21	9.5	**115**	**18.4**
Total	261		143		220		**624**	

4.1.1.7. Occupation

About one-third of the women (33.4%) reported having another occupation other than sex work, most commonly marketeer (52.7% of those reporting another occupation). In Livingstone and Chipata, a significant number were waitresses (15.4% and 16.7% of those reporting another

occupation respectively). In Chirundu, 43.1% of those reporting another occupation reported an occupation other than marketeer, waitress or restaurant owner. Fifty-eight percent of the women who were interviewed said that they were supporting others, with the number of people supported ranging from 1 to 18, the median being 2.

Table 1.4: Socio-demographic characteristics of the study population by border site (continued)

Characteristic	Livingstone		Chirundu		Chipata		Total	
Occupation other than sex work	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	83	31.9	59	41.3	66	30.1	**208**	**33.4**
Total	260		143		219		**622**	
Type of occupation[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Marketeer	47	60.3	32	54.2	28	42.4	**107**	**52.7**
Waitress	12	15.4	1	1.7	11	16.7	**24**	**11.9**
Restaurant owner	0	0.0	0	0.0	3	4.6	**3**	**1.5**
Other	23	28.0	25	43.1	23	34.8	**71**	**34.5**
Total	82		58		66		**206**	
Supporting others	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	149	57.1	83	58.0	129	58.6	**361**	**57.9**
Total	261	41.8	143	22.9	220	35.3	**624**	
Number of people supporting[2]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Median	2.0		3.0		2.0		**2.0**	
1	56	37.8	24	28.9	33	25.6	**113**	**31.4**
2	36	24.3	17	20.5	40	31.0	**93**	**25.8**
3	15	10.1	24	28.9	27	20.9	**66**	**18.3**
3+	41	27.7	18	21.7	29	22.5	**88**	**24.4**
Total	148		83		129		**360**	

[1] Only those with occupation other than sex work are included
[2] Only those supporting someone are included

4.1.2. Behavioural characteristics of the study population

Table 2 presents the behavioural characteristics of the study population by site.

4.1.2.1. Alcohol and drug use

Most women (71.0%) used alcohol at least once a week, but only a small proportion (14.2%) used it on a daily basis. Alcohol use was the highest in Livingstone, followed by Chirundu and

Chipata. About one-quarter (23.8%) admitted having used drugs. Most of these (98.0%) reported using daga (marijuana). Nine women reported using a hard drug (heroin or cocaine)**.**

Table 2.1: Alcohol and drug use by the study population

Characteristic	**Livingstone**		**Chirundu**		**Chipata**		**Total**	
Alcohol use	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Every day	42	16.2	18	12.7	28	12.8	**88**	**14.2**
At least once a week	172	66.2	83	58.5	98	44.7	**353**	**56.8**
Less than once a week or never	46	17.7	41	28.9	93	42.5	**180**	**29.0**
Total	260		142		219		**621**	
Drug use	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Ever	59	22.7	41	28.7	48	22.0	**148**	**23.8**
Never	201	77.3	102	71.3	170	78.0	**473**	**76.2**
Total	260		143		218		**621**	
Drugs used[1]	**N**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Daga	57	96.6	40	97.6	48	100.0	**145**	**98.0**
Heroin	2	3.4	2	4.9	0	0.0	**4**	**2.7**
Cocaine	4	6.8	1	2.4	0	0.0	**5**	**3.4**
Other	1	1.7	0	0.0	1	2.1	**2**	**1.4**
Total	59		41		48		**148**	

[1] Only those who ever used drugs are included

4.1.2.2. Time Period and place of sex work

The median age of sexual debut was 15 years for women at all sites. The median age for starting sex work was 17 years. Almost all women (99.5%) reported doing sex work elsewhere before. Of these, 41.9% reported doing sex work in a province other than the one currently residing in, with the highest percentage among women from Chirundu (53.8%) and the lowest among women from Chipata (32.0%). The median time period of sex work in the current residence was 1.7 years. The turnover is the highest in Chirundu (median 1 year), followed by Chipata (1.2 years) and Livingstone (2 years).

Table 2.2: Characteristics of sex work of the study population

Characteristic	Livingstone		Chirundu		Chipata		Total	
Age at first sexual intercourse								
Median Range	15 9-22		15 10-21		15 9-36		**15** **9-36**	
Total	248		129		210		**587**	
Age at first sex work								
Median Range	17 10-35		18 13-47		18 9-36		**17** **9-47**	
Total	242		132		205		**579**	
Sex work elsewhere before	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	259	99.2	143	100.0	219	99.5	**621**	**99.5**
Total	261		143		220		**624**	
Sex work in another province before[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	113	43.6	77	53.8	70	32.0	**260**	**41.9**
Total	259		143		219		**621**	
Time period of sex work in current residence	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Median (years) Range (years)	2 0-29		1 0-22		1.2 0-10		**1.7** **0-29**	
<1month	12	4.6	16	11.2	5	2.3	**33**	**5.3**
1-11 months	56	21.5	32	22.4	44	20.0	**132**	**21.2**
12-23 months	47	18.0	31	21.7	71	32.3	**149**	**23.9**
24-35 months	51	19.5	27	18.9	42	19.1	**120**	**19.2**
36-47 months	28	10.7	13	9.1	22	10.0	**63**	**10.1**
48-71 months	32	12.3	10	7.0	21	9.5	**63**	**10.1**
>/= 72 months	35	13.4	14	9.8	15	6.8	**64**	**10.3**
Total	261		143		220		**624**	

[1] Only those who reported sex work elsewhere before are included

4.1.2.3. Number of sexual partners and clients

The median number of sexual partners in the last 7 days was 3 and the mean 3.4. Most of these were paying clients (median 2, mean 2.8). The median and mean number of clients on the last day

worked was 1 and 1.7 respectively. Only a small proportion of the women (5.8%) saw a high number of clients (more than 3) per day. This was significantly higher in Chipata (14.2%) than in the other sites (1.9% and 0.0% in Livingstone and Chirundu respectively). The price per client ranged from 2,000 Zambian Kwacha (equivalent of 0.7 USD) to 500,000 Kwacha (178 USD), with a median of 20,000 Kwacha (7 USD).

Table 2.3 Characteristics of sex work of the study population (continued)

Characteristic	Livingstone		Chirundu		Chipata		Total	
Sexual partners in the last 7 days	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Mean	2.8		2.1		5.0		**3.4**	
Median	2		2		4		**3**	
0	14	5.4	14	9.8	3	1.4	**31**	**5.0**
1	59	22.7	41	28.7	13	5.9	**113**	**18.1**
2	64	24.6	46	32.2	20	9.1	**130**	**20.9**
3	53	20.4	20	14.0	47	21.4	**120**	**19.3**
4	31	11.9	12	8.4	47	21.4	**90**	**14.4**
5-6	22	8.5	7	4.9	42	19.1	**71**	**11.4**
6+	17	6.5	3	2.1	48	21.8	**68**	**10.9**
Total	260		143		220		**623**	
Paying clients in the last 7 days	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Mean	2.1		1.7		4.3		**2.8**	
Median	2		1		4		**2**	
0	29	11.2	18	12.6	3	1.4	**50**	**8.0**
1	86	33.1	62	43.4	19	8.6	**167**	**26.8**
2	63	24.2	34	23.8	35	15.9	**132**	**21.2**
3	48	18.5	14	9.8	51	23.2	**113**	**18.1**
4	12	4.6	7	4.9	43	19.5	**62**	**10.0**
5-6	12	4.6	6	4.2	31	14.1	**49**	**7.9**
6+	10	3.8	2	1.4	38	17.3	**50**	**8.0**
Total	260		143		220		**623**	
Clients on last day worked	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Mean	1.4		1.2		2.4		**1.7**	
Median	1		1		2		**1**	
0	7	2.7	1	0.7	5	2.3	**13**	**2.1**
1	166	64.1	109	76.2	57	26.1	**332**	**53.5**
2	66	25.5	30	21.0	71	32.6	**167**	**26.7**
3	15	5.8	3	2.1	54	24.8	**72**	**11.6**
3+	5	1.9	0	0.0	31	14.2	**36**	**5.8**
Total	259		143		218		**620**	

Characteristic	Livingstone		Chirundu		Chipata		Total	
Price per client (Kwacha) *	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Mean	26,977		44,902		28,869		**31,839**	
Median	20,000		20,000		20,000		**20,000**	
2,000-5,000	21	8.4	6	4.2	14	6.4	**41**	**6.7**
6,000-10,000	49	19.5	23	16.1	50	22.9	**122**	**19.9**
11,000-15,000	33	13.1	13	9.1	20	9.2	**66**	**10.8**
16,000-20,000	44	17.5	31	21.7	32	14.7	**107**	**17.5**
21,000-30,000	43	17.1	22	15.4	36	16.5	**101**	**16.5**
31,000-50,000	41	16.3	20	14.0	43	19.7	**104**	**17.0**
50,000+	20	8.0	28	19.6	23	10.6	**71**	**11.6**
Total	251		143		218		**612**	

* 2900 Kwacha = 1 USD

4.1.2.4. Sexual behaviour with non-paying partners

Half of the women (50.0%) said that they had not had a non-paying partner in the last seven days. Of those who reported a non-paying partner, the median reported frequency of sexual intercourse was 4 times in the last 30 days. More than one-third (37.1%) of the women who had a non-paying partner reported that they had been forced by a sexual partner to have sexual intercourse in the past 12 months.

Table 2.4: Characteristics of the non-paying partners of the study population

Characteristic	Livingstone		Chirundu		Chipata		Total	
Non-paying partners in the last 7 days	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Mean	0.8		0.5		0.7		**0.7**	
Median	1		0		1		**0.5**	
0	117	45.0	87	60.8	107	48.9	**311**	**50.0**
1	109	41.9	51	35.7	80	36.5	**240**	**38.6**
2	24	9.2	4	2.8	23	10.5	**51**	**8.2**
2+	10	3.8	1	0.7	9	4.1	**20**	**3.2**
Total	260		143		219		**622**	
Frequency of sexual intercourse over the last 30 days[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Mean	5.5		4.5		11.0		**7.2**	
Median	4		3.5		10		**4**	
0-1	25	18.8	6	11.5	8	8.2	**39**	**13.8**
2-3	35	26.3	20	38.5	17	17.5	**72**	**25.5**
4-6	40	30.1	20	38.5	13	13.4	**73**	**25.9**
7-12	23	17.3	3	5.8	25	25.8	**51**	**18.1**
12+	10	7.5	3	5.8	34	35.1	**47**	**16.7**
Total	133	47.2	52	18.4	97	34.4	**282**	
Forced sexual intercourse during the past 12 months[1]								
Yes	62	42.5	20	36.4	35	30.7	**117**	**37.1**
Total	146		55		114		**315**	

[1] Only those who reported a non-paying partner in the last 7 days are included

4.1.3. Condom use by the study population

Table 3 presents the level of condom use with clients and non-paying partners

4.1.3.1. Condom use with clients

Slightly more than half of the women (53.9%) claimed to have used a condom at the last sexual contact with a paying client. Of these, the majority reported that it was either they who suggested the condom use to the client (61.9%) or that it was a joint decision (20.8%). Of those who did not use a condom at the last sexual contact, the most frequent reasons mentioned were that the client objected (35.6%), that they themselves didn't like it (21.1%) or that they didn't think of it (20.8%). In only 11.6% of the cases a condom was not used because it was unavailable. When

asked how regularly they used condoms with clients over the last 30 days, 24.8% said they used condoms every time or almost every time, 58.2% sometimes and 17% said they never used condoms. Condom use with clients was significantly higher in Chipata (61.8% at last contact) than in Livingstone (48.8%) and Chirundu (51.0%). Also in Chipata, a higher proportion of women said that it was the client who took the initiative to use a condom, and the reason given for not using a condom was more frequently because the woman didn't like it or didn't think of it.

Table 3.1: Condom use with clients

Characteristic	Livingstone		Chirundu		Chipata		Total	
Condom use at last sexual contact	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	127	48.8	73	51.0	136	61.8	**336**	**53.9**
Total	260		143		220		**623**	
Who suggested condom use[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Myself	89	70.1	45	61.6	74	54.4	**208**	**61.9**
My partner	17	13.4	11	15.1	30	22.1	**58**	**17.3**
Joint decision	21	16.5	17	23.3	32	23.5	**70**	**20.8**
Total	127		73		136		**336**	
Reason for no condom use[2]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Not available	21	15.9	7	10.3	5	6.0	**33**	**11.6**
Too expensive	1	0.8	0	0.0	0	0.0	**1**	**0.4**
Partner objected	46	34.8	32	46.4	23	27.7	**101**	**35.6**
Don't like them	20	15.2	8	11.8	32	38.1	**60**	**21.1**
Used other contraceptive	0	0.0	1	1.5	6	7.1	**7**	**2.5**
Didn't think it was necessary	8	6.1	7	10.3	3	3.6	**18**	**6.3**
Didn't think of it	23	17.4	12	17.6	24	28.6	**59**	**20.8**
Itching	5	3.8	2	2.9	11	13.1	**18**	**6.3**
Other	6	4.5	2	2.9	13	15.5	**21**	**7.4**
Don't know	3	2.3	1	1.4	0	0.0	**4**	**1.4**
Total	259		143		220		**622**	
Regularity of condom use over the last 30 days	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Every time	46	17.8	25	17.5	49	22.3	**120**	**19.3**
Almost every time	17	6.6	10	7.0	7	3.2	**34**	**5.5**
Sometimes	151	58.3	78	54.5	133	60.5	**362**	**58.2**
Never	45	17.4	30	21.0	31	14.1	**106**	**17.0**
Total	259		143		220		**622**	

[1] Only those who used a condom are included
[2] Only those who did not use a condom are included

4.1.3.2. Condom use with non-paying partners

Less than half (44.0%) of the women said that they had used a condom at the last sexual contact with a non-paying partner. Again, most reported that this had happened either on their own initiative (55.4%) or by a joint decision (21.6%). The same reasons were mentioned for not using condoms: partner objected (33.5%), they themselves didn't like it (22.3%) or didn't think of it (16.0%). The majority reported using condoms with their non-paying partners during the past 12 months "only sometimes" (65.8%) or "never" (17.4%). Only 16.8% reported using condoms "every time" or "almost every time." Again, condom use was the highest in Chipata.

Table 3.2: Condom use with non-paying partners

Characteristic	Livingstone		Chirundu		Chipata		Total	
Condom use at last sexual contact	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	48	32.7	24	43.6	67	58.8	**139**	**44.0**
Total	147		55		114		**316**	
Who suggested condom use[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Myself	31	64.6	12	50.0	34	50.7	**77**	**55.4**
My partner	6	12.5	5	20.8	19	28.4	**30**	**21.6**
Joint decision	11	22.9	7	29.2	14	20.9	**32**	**23.0**
Total	48		24		67		**139**	
Reason for no condom use[2]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Not available	14	14.3	4	13.3	4	8.5	**22**	**12.6**
Too expensive	0	0.0	0	0.0	2	4.3	**2**	**1.1**
Partner objected	29	29.6	14	45.2	16	34.0	**59**	**33.5**
Don't like them	21	21.4	6	20.0	12	25.5	**39**	**22.3**
Used other contraceptive	0	0.0	1	3.3	4	8.5	**5**	**2.9**
Didn't think it was necessary	14	14.3	4	13.3	6	12.8	**24**	**13.7**
Didn't think of it	14	14.3	3	10.0	11	23.4	**28**	**16.0**
Itching	1	1.0	0	0.0	0	0.0	**1**	**0.6**
Other	2	2.0	0	0.0	2	4.3	**4**	**2.3**
Don't know	1	1.0	0	0.0	0	0.0	**1**	**0.6**
Total	147		55		114		**316**	
Regularity of condom use	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Every time	13	8.8	9	16.4	24	21.1	**46**	**14.6**
Almost every time	5	3.4	0	0.0	2	1.8	**7**	**2.2**
Sometimes	95	64.6	35	63.6	78	68.4	**208**	**65.8**
Never	34	23.1	11	20.0	10	8.8	**55**	**17.4**
Total	147		55		114		**316**	

[1] Only those who used a condom are included

[2] Only those who did not use a condom are included

4.1.4. Knowledge and availability of condoms

Table 4 presents the data on knowledge and availability of the male and female condom.

4.1.4.1. Male condoms

With the exception of seven women, all of the women (98.9%) had heard of male condoms. Most of these women also reported that they had used a male condom (88.7%). Those who reported never using male condoms were asked if they knew where to obtain them. Most of them did (78.7%). When this group was asked where to obtain condoms, they most frequently mentioned shops (71.5%), a clinic or hospital (64.5%), a bar, guesthouse or hotel (52.4%) and the market (46%). Pharmacies (25.3%), family planning clinics (12.9%), friends (9.6%) and peer educators (5.0%) were mentioned less frequently as a source for condoms. Most women (94.4%) reported that they could obtain condoms in less than one hour. Most (76.5%) of the women did not have any condoms on hand at the time of the interview. Women's responses regarding places for obtaining condoms varied slightly by site. In Chirundu, bars, guesthouses or hotels were more commonly mentioned, while in Chipata, health facilities were by far the most important source of condoms.

Table 4.1: Knowledge and availability of male condoms

Characteristic	Livingstone		Chirundu		Chipata		Total	
Ever heard of a condom	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	254	98.1	142	99.3	218	99.5	**614**	**98.9**
Total	259		143		219		**621**	
Ever used a condom[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	225	88.9	128	90.1	191	87.6	**544**	**88.7**
Total	253		142		218		**613**	
Knows where to get condoms[2]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Wasn't asked the question	222	87.4	125	88.0	192	88.1	**539**	**87.8**
Yes	26	10.2	13	9.2	20	9.2	**59**	**9.6**
No	6	2.4	4	2.8	6	2.8	**16**	**2.6**
Total	254		142		218		**614**	

Characteristic	Livingstone		Chirundu		Chipata		Total	
Places or persons where condoms can be obtained[3]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Shop	177	72.2	95	69.3	152	72.0	**424**	**71.5**
Pharmacy	79	32.1	14	10.1	57	27.3	**150**	**25.3**
Market	126	51.2	48	34.8	99	47.1	**273**	**46.0**
Clinic	93	37.8	37	26.8	114	54.3	**244**	**41.1**
Hospital	111	45.1	55	39.9	133	63.0	**299**	**50.3**
Clinic/hospital	148	60.2	74	53.6	162	76.8	**384**	**64.5**
Family Planning Centre	13	5.3	8	5.8	56	26.5	**77**	**12.9**
Any health facility	148	60.2	75	54.3	171	81.0	**394**	**66.2**
Bar/guesthouse/hotel	124	50.4	87	63.0	101	47.9	**312**	**52.4**
Peer educator	4	5.6	4	7.1	1	1.9	**9**	**5.0**
Friend	19	7.8	3	2.2	35	16.6	**57**	**9.6**
Other	26	10.6	3	2.2	4	1.9	**33**	**5.5**
Total	246		138		211		**595**	
Delays in obtaining condoms [3]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Under 1 hour	233	95.5	127	92.0	200	94.8	**560**	**94.4**
1 hour to 1 day	9	3.7	10	7.2	3	1.4	**22**	**3.7**
More than 1 day	1	0.4	0	0.0	0	0.0	**1**	**0.2**
Don't know	1	0.4	1	0.7	8	3.8	**10**	**1.7**
Total	244		138		211		**593**	
Condoms on hand[3]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
0	195	78.6	98	71.0	164	77.7	**457**	**76.5**
1-5	41	16.5	26	18.8	40	19.0	**107**	**17.9**
5+	12	4.8	14	10.1	7	3.3	**33**	**5.5**
Total	248		138		211		**597**	

[1] Those who never heard of a male condom are excluded
[2] Only those who reported never using a male condom were asked the question
[3] Those who had never heard of and who did not know where to obtain a condom are excluded

4.1.4.2. Female condom

The women knew less about the female condom, although 59.8% had heard of them. Of these, 19.0% had already used the female condom and 48.9% knew where to get them. When asked where to obtain female condoms, the women most often mentioned a clinic or hospital (65.6%) followed by shops (33.3%), pharmacies (29.0%) and bars, guesthouses or hotels (20.8%). The female condom was more widely known and used in Chirundu (22.7% of the women had used a female condom vs. 10.4% and 6.0% in Livingstone and Chipata respectively).

Table 4.2: Knowledge and availability of female condoms

Characteristic	Livingstone		Chirundu		Chipata		Total	
Ever heard of a condom	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	142	56.6	92	65.2	131	60.1	**365**	**59.8**
Total	251		141		218		**610**	
Ever used a condom[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	26	17.7	32	34.0	13	9.8	**71**	**19.0**
Total	147		94		132		**373**	
Knows where to get condoms [1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	73	50.3	56	59.6	52	39.7	**181**	**48.9**
Total	145		94		131		**370**	
Places or persons where condoms can be obtained[2]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Shop	27	36.5	23	41.1	11	20.8	**61**	**33.3**
Pharmacy	34	45.9	5	8.9	14	26.4	**53**	**29.0**
Market	10	13.7	6	10.7	6	11.3	**22**	**12.1**
Clinic	28	37.8	15	26.8	28	52.8	**71**	**38.8**
Hospital	28	37.8	22	39.3	31	58.5	**81**	**44.3**
Clinic/hospital	43	58.1	30	53.6	47	88.7	**120**	**65.6**
Family Planning Centre	6	8.1	6	10.7	7	13.2	**19**	**10.4**
Any health facility	44	59.5	34	60.7	48	90.6	**126**	**68.9**
Bar/guesthouse/hotel	17	23.0	18	32.1	3	5.7	**38**	**20.8**
Peer educator	6	7.5	0	0.0	1	1.9	**7**	**3.7**
Friend	5	6.8	5	8.9	1	1.9	**11**	**6.0**
Other	6	8.1	2	3.6	5	9.4	**13**	**7.1**
Total	74		56		53		183	

[1] Those who had never heard of a female condom are excluded

[2] Those who had never heard of a condom and those who did not know where to obtain a condom are excluded

4.1.5. Knowledge and behaviour related to STDs

Tables 5.1 and 5.2 present the level of knowledge on STDs and the behaviour when symptomatic.

4.1.5.1. STD Knowledge

Most women (95.7%) had heard of 'diseases that can be transmitted through sexual intercourse'. Of these women, 85% could mention at least one STD symptom and 71.9% could mention at least two. The best known STD symptoms in women were genital discharge (54.0%), genital sores or ulcers (53%) and abdominal pain (51.6%). Three-quarters of these women (76.4%)

could mention at least one STD symptom in men, and 61.1% could mention at least two. The symptoms mentioned most frequently for men were genital discharge and genital ulcers or sores (both 54.8%). Knowledge of STD symptoms both in women and men was remarkably better in Chipata than in the other sites. Almost half of the women (45.9%) in Chipata could mention four STD symptoms in women, while in Livingstone and Chirundu only 17.2% and 13.5% respectively were able to do this.

Table 5.1: Knowledge on STD

Characteristic	Livingstone		Chirundu		Chipata		Total	
Ever heard of STDs	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	249	96.1	140	97.9	205	93.6	**594**	**95.7**
No	10	3.9	3	2.1	14	6.4	**27**	**4.3**
Total	259		143		219		**621**	
STD symptoms in women known[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Abdominal pain	127	51.2	58	41.4	121	59.0	**306**	**51.6**
Genital discharge	89	35.7	58	41.4	134	65.4	**281**	**47.3**
Foul smelling discharge	41	16.5	25	17.9	69	33.7	**135**	**22.8**
Any discharge	102	41.0	68	48.6	151	73.7	**321**	**54.0**
Burning pain on urination	74	29.8	38	27.3	104	51.0	**216**	**36.5**
Genital ulcers/sores	125	50.2	67	48.2	122	59.5	**314**	**53.0**
Swellings in groin area	66	26.6	37	26.4	75	36.6	**178**	**30.0**
Genital itching	72	29.0	21	15.0	70	34.1	**163**	**27.5**
Total	248		140		205		**593**	
Number of STD symptoms in women known[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
0	42	16.9	25	17.9	22	10.7	**89**	**15.0**
1	38	15.3	25	17.9	15	7.3	**78**	**13.1**
2	63	25.3	30	21.4	40	19.5	**133**	**22.4**
3	63	25.3	41	29.3	34	16.6	**138**	**23.2**
4	18	7.2	15	10.7	36	17.6	**69**	**11.6**
4+	25	10.0	4	2.9	58	28.3	**87**	**14.6**
Total	249		140		205		**594**	
STD symptoms in men known[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Genital discharge	138	55.6	70	50.0	117	57.1	**325**	**54.8**
Burning pain on urination	76	30.6	34	24.3	101	49.3	**211**	**35.6**
Genital ulcer/sores	130	52.4	72	51.4	123	60.0	**325**	**54.8**
Swellings in groin area	86	34.7	35	25.0	80	39.0	**201**	**33.9**
Total	248		140		205		**593**	

Characteristic	Livingstone		Chirundu		Chipata		Total	
Number of STD symptoms in men known[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
0	58	23.4	39	27.9	43	21.0	**140**	**23.6**
1	39	15.7	28	20.0	24	11.7	**91**	**15.3**
2	87	35.1	37	26.4	55	26.8	**179**	**30.2**
3	39	15.7	35	25.0	45	22.0	**119**	**20.1**
4	25	10.1	1	0.7	38	18.5	**64**	**10.8**
Total	248		140		205		**593**	

[1] Those who never heard of STDs are excluded.

4.1.5.2. STD Behaviour

About one-third of the women (35.7%) reported having either a genital discharge (24.4%) or genital ulcers or sores (27.8%) in the past 12 months. Three-quarters (76.1%) of these sought advice at a health facility, be it a government (68.2%), private (27.3%), workplace (14.6%) or church-run (11.4%) health facility. Almost half (46.5%) sought advice from a traditional healer, 25.8% from a pharmacist, 23.5% bought capsules on the street and 27.3% took medicines at home. Less than half (43.1%) said that they told their partner, 32.9% stopped having sex and 23.1% used condoms while symptomatic. The women interviewed in Chipata reported fewer symptoms than in the other sites (26.9% vs. 39.2% and 41.3% in Chirundu and Livingstone respectively). Those women who had symptoms more often reported seeking care at health facilities, pharmacies and drug vendors. They also reported more frequently that they informed their partner, stopped having sex and/or always used condoms while symptomatic.

Table 5.2: Behaviour related to STD

Characteristic	Livingstone		Chirundu		Chipata		Total	
History of STD symptoms in the past 12 months	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Genital discharge	70	27.0	37	26.1	44	20.1	**151**	**24.4**
Genital ulcer sores	87	33.7	41	29.1	44	20.1	**172**	**27.8**
Genital discharge or ulcers/sores	107	41.3	56	39.2	59	26.9	**222**	**35.7**
Total	259		143		219		**621**	
Behaviour the last time had STD symptoms [1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Seek advice from a government health facility	67	63.2	41	74.5	38	71.7	**146**	**68.2**
Seek advice from a workplace health facility	11	10.5	6	10.9	14	26.4	**31**	**14.6**
Seek advice from a church or charity run health facility	9	8.7	4	7.3	11	21.6	**24**	**11.4**
Seek advice from a private health facility	22	21.4	13	24.1	22	42.3	**57**	**27.3**
Seek advice at any of the 4 above	77	72.6	43	78.2	42	80.8	**162**	**76.1**
Seek advice from a pharmacist	23	21.9	8	14.5	24	45.3	**55**	**25.8**
Seek advice from a traditional healer	54	51.4	22	40.0	23	43.4	**99**	**46.5**
Bought capsules on the street	24	22.9	9	16.4	17	32.1	**50**	**23.5**
Took medicine at home	32	30.8	9	17.0	16	30.8	**57**	**27.3**
Tell partner about the symptoms	42	40.0	17	32.1	32	60.4	**91**	**43.1**
Stop having sex while symptomatic	31	29.5	14	25.5	25	47.2	**70**	**32.9**
Always use condom while symptomatic	25	24.0	8	14.5	16	30.2	**49**	**23.1**
Total	104		55		53		**212**	

[1] Only those who reported STD symptoms are included

4.1.6. Family planning practices

Table 6 presents family planning practices by study population.

Less than half (45.2%) of the women reported using any family planning method. Of those who reported using a family planning method, only 58.5% used a method considered effective for family planning. The most common methods were oral contraception (47.5%) and injectable contraception (13.7%). None of the women had an intrauterine device (IUD) inserted. About half of the women who were using a method (49.5) said they used condoms for family planning. Other methods were rare. About one-third of the women (31.7%) reported losing a pregnancy. The reported use of family planning was significantly higher in Chipata (55.3%), followed by Livingstone (43.2%) and Chirundu (33.6%). When limited to effective methods however, the use of family planning was similar in Chipata and Livingstone (both 29.2% of the total), but lower in Chirundu (16.1%).

Table 6: Family planning practices

Characteristic	Livingstone		Chirundu		Chipata		Total	
Currently using a family planning method	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	111	43.2	48	33.6	121	55.3	**280**	**45.2**
Total	257		143		219		**619**	
Method using[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Oral contraception	53	49.1	19	39.6	59	49.2	**131**	**47.5**
Injection	24	22.2	4	8.3	10	8.3	**38**	**13.7**
NEO plant	3	2.	0	0.0	0	0.0	**3**	**1.1**
IUD	0	0.0	0	0.0	0	0.0	**0**	**0.0**
Any of the 4 methods above	75	69.4	23	47.9	64	52.9	**162**	**58.5**
Male condom	33	30.6	22	45.8	82	67.8	**137**	**49.5**
Spermicides	0	0.0	0	0.0	1	0.8	**1**	**0.4**
Diaphragm	0	0.0	1	2.1	3	2.5	**4**	**1.4**
Traditional method	4	3.7	3	6.3	10	8.3	**17**	**6.2**
Natural	0	0.0	2	4.2	6	5.0	**8**	**2.9**
Other	2	1.9	0	0.0	1	0.8	**3**	**1.1**
Total	108		48		121		**277**	
Ever lost a pregnancy	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	69	26.7	52	36.6	75	34.4	**196**	**31.7**
Total	258		142		218		**618**	

[1] Only those currently using a family planning method are included

4.1.7. Knowledge, opinions and attitudes related to HIV

Table 7 presents the data on knowledge, opinions and attitudes related to HIV.

Almost all women, with the exception of two, had heard of HIV/AIDS. Three-quarters (74.7%) also knew someone living with HIV/AIDS. For 89.3% of these women, this person was a close relative (42.7%), a close friend (44.0%) or both (2.7%). The women generally knew that HIV could be transmitted by infected needles (91.8%) or from mother to child during pregnancy (90.6%). The fact that HIV could also be transmitted through breastfeeding was a little less known (81.9%). Still 22.2% of the women thought mosquito bites could transmit HIV, and 8.6% believed it could be transmitted by sharing meals. Most women (93.4%) were aware that a healthy looking person could be infected with HIV. About fourth-fifths of the women knew that HIV infection can be prevented by using condoms (80.7%), by faithfulness (80.1%) or abstinence (84.0%). Only 17.3% of those who knew that HIV can be transmitted from mother to child also knew that treating pregnant infected women could prevent this infection in the child. Again, knowledge overall was better in Chipata than in the other sites.

Table 7: Knowledge, opinions and attitudes related to HIV

Characteristic	Livingstone		Chirundu		Chipata		Total	
Ever heard of HIV	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	256	99.2	143	100.0	219	100.0	**618**	**99.7**
Total	258		143		219		**620**	
Knows someone living with HIV/AIDS[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	188	73.7	100	70.4	169	78.6	**457**	**74.7**
Total	255		142		215		**612**	
Has close relative or friend living with HIV/AIDS[2]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Close relative	66	36.1	37	37.8	89	52.7	**192**	**42.7**
Close friend	88	48.1	43	43.9	67	39.6	**198**	**44.0**
Both	7	3.8	5	5.1	0	0.0	**12**	**2.7**
No	22	12.0	13	13.3	13	7.7	**48**	**10.7**
Total	183		98		169		**450**	
Thinks that a person can get HIV from[1]:	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Mosquito bites	48	18.8	42	29.6	47	21.5	**137**	**22.2**
Sharing meals	26	10.1	19	13.5	8	3.7	**53**	**8.6**
Infected needles	231	89.9	127	88.8	210	95.9	**568**	**91.8**
Mother to child during pregnancy	226	87.9	129	90.2	205	94.0	**560**	**90.6**
Breast feeding	195	75.9	113	79.0	199	90.9	**507**	**81.9**
Total	257		143		219		**619**	
Knows that people can prevent HIV by[1]:	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Condom use	198	77.3	104	72.7	197	90.0	**499**	**80.7**
Faithfulness	200	78.1	111	77.6	184	84.0	**495**	**80.1**
Abstinence	210	81.7	117	81.8	193	88.1	**520**	**84.0**
Treating pregnant infected women	30	12.4	25	18.4	48	22.2	**103**	**17.3**
Total	257		143		219		**619**	

Characteristic	Livingstone		Chirundu		Chipata		Total	
Knows that a healthy looking person can be infected[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	241	93.8	131	92.3	205	93.6	**577**	**93.4**
No	12	4.7	8	5.6	10	4.6	**30**	**4.9**
Don't know	4	1.6	3	2.1	4	1.8	**11**	**1.8**
Total	257	41.6	142	23.0	219	35.4	**618**	

[1] Those who never heard of HIV are excluded.
[2] Only those who know someone with HIV/AIDS are included

4.1.8. HIV Voluntary counselling and testing

Table 8 presents the data on HIV voluntary testing and counselling.

About two-thirds of the women (66.4%) said they had access to a voluntary counselling and testing facility. Twelve percent said they had been tested. Of these, about half (46.6%) said it was not on a voluntary basis, and one-quarter (25.4%) never found out the test result.

Table 8: HIV Voluntary counselling and testing

Characteristic	Livingstone		Chirundu		Chipata		Total	
Access to confidential testing for HIV[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	174	67.7	95	66.4	142	64.8	**411**	**66.4**
No	56	21.8	29	20.3	43	19.6	**128**	**20.7**
Don't know	27	10.5	19	13.3	34	15.5	**80**	**12.9**
Total	257		143		219		**619**	
Ever been tested[1]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	32	12.5	23	16.2	19	8.7	**74**	**12.0**
Total	256		142		219		**617**	
Voluntary tested[2]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	16	50.0	13	56.5	10	55.6	**39**	**53.4**
No	16	50.0	10	43.5	8	44.4	**34**	**46.6**
Total	32		23		18		**73**	
Found out the result[2]	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	25	83.3	13	56.5	15	83.3	**53**	**74.6**
No	5	16.7	10	43.5	3	16.7	**18**	**25.4**
Total	30		23		18		**71**	

[1] Those who never heard of HIV are excluded.
[2] Only those who were tested are included

4.1.9. Project indicators

The study serves as a baseline for the project implemented by World Vision International. Five behavioural indicators were identified. Table 9 presents the results of the indicators.

One of the indicators measures knowledge of STD symptoms; 61.4 percent of the women could cite at least two major STD symptoms in women. The following were considered as major STD symptoms: lower abdominal pain, genital discharge (foul smelling or not), genital ulcers or sores, and swelling in the groin area. The second indicator measures knowledge of HIV prevention; 84.8 percent could mention at least two HIV prevention strategies. The following were considered as prevention strategies: condom use, faithfulness, abstinence and treating pregnant women.

The third indicator measures condom availability; 96.1% reported easy access to condoms. The ability to obtain a condom in less than one hour was considered "easy access." The women who did not know the delay period were excluded. The fourth indicator measures condom use with clients; 53.9% of the women reported that they used a condom in the last commercial sex act. The fifth indicator measures condom use with regular partners; 44.0% of the women reported that

they used a condom in the last sex act with a non-paying partner. The difference in results on the indicators in the three sites was statistically significant ($p<0.05$). The women in Chipata performed consistently better than in the two other sites.

Table 9: Project indicators

Characteristic	Livingstone		Chirundu		Chipata		Total		
% who can correctly cite two major STD symptoms	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**95% CI**
1	138	55.4	77	55.0	150	73.2	**365**	**61.4**	**57.5-65.3**
2	111	44.6	63	45.0	55	26.8	**229**	**38.6**	**34.7-42.5**
Total	249		140		205		**594**		
% who can correctly cite two HIV prevention strategies	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**95% CI**
1	210	81.7	117	81.8	198	90.4	**525**	**84.8**	**81.8-87.5**
2	47	18.3	26	18.2	21	9.6	**94**	**15.2**	**12.5-18.2**
Total	257		143		219		**619**		
% who reported easy access to condoms	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**95% CI**
1	233	95.9	127	92.7	200	98.5	**560**	**96.1**	**94.2-97.4**
2	10	4.1	10	7.3	3	1.5	**23**	**3.9**	**2.6-5.8**
Total	243		137		203		**583**		
% who reported condom use in last commercial sex act	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**95% CI**
1	127	48.8	73	51.0	136	61.8	**336**	**53.9**	**50.0-57.8**
2	133	51.2	70	49.0	84	38.2	**287**	**46.1**	**42.2-50.0**
Total	260		143		220		**623**		
% who reported condom use in last sex act with non-paying partner	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**95% CI**
1	48	32.7	24	43.6	67	58.8	**139**	**44.0**	**38.6-49.5**
2	99	67.3	31	56.4	47	41.2	**177**	**56.0**	**50.5-61.4**
Total	147		55		114		**316**		

4.2. Biological data

At least one biological sample was obtained from 576 of the 630 women (91%) for which questionnaire data are available. In addition, for three women who had no questionnaire data,

biological specimens were available. Therefore, biological specimens were obtained from a total of 579 women. Blood samples were available for all of these women, although in two women there was not enough serum to perform the analyses. Vaginal swabs for *Trichomonas vaginalis* culture were available for 571 women and vaginal swabs for DNA amplification for 568 women.

The results of the biological tests are presented in table 10. The prevalence of gonorrhoea, genital chlamydial infection, syphilis and trichomoniasis was 19.9%, 6.7%, 29.3% and 48.9% respectively. The prevalence of gonorrhoea and syphilis was clearly higher in Livingstone than in the other sites. In Livingstone 23.2% of the women were infected with gonorrhoea and 36.5% with syphilis, while in Chirundu and Chipata these percentages were 19.8% and 16.0% respectively for gonorrhoea and 28.7% and 20.9% respectively for syphilis.

Table 10: STI prevalence

Characteristic	Livingstone		Chirundu		Chipata		Total		
STI	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**95% CI**
Gonorrhoea	57	23.2	23	19.8	33	16.0	**113**	**19.9**	**16.8-23.3**
Chlamydia	15	6.1	8	6.9	15	7.3	**38**	**6.7**	**4.8-9.0**
Gonorrhoea and/or chlamydia	65	26.4	27	23.3	44	21.4	**136**	**23.9**	**20.6-27.6**
Total	246		116		206		**568**		
Syphilis	91	36.5	35	28.7	43	20.9	**169**	**29.3**	**25.7-33.1**
Total	249		122		206		**577**		
Trichomoniasis	125	50.6	58	49.2	96	46.6	**279**	**48.9**	**44.8-53.0**
Total	247		118		206		**571**		

5. Discussion

5.1. Participant selection and sample size

The desired sample size was calculated at 800 for Livingstone and Chipata combined, plus 400 for Chirundu. This was to allow for comparison over time at Livingstone and Chipata combined. Chirundu would be compared combined to the other sites of the Corridor of Hope Regional Project. The sample size was calculated assuming that each site had a minimum of 400 sex workers. However, during the mapping it became clear that this was not the case and a "take all" approach was used. Since the survey period was relatively short, we can assume that few sex workers would have moved from site to site during this period and we have not sampled a significant number of sex workers twice. Only 624 participants were finally recruited, 481 in Livingstone and Chipata combined and 143 in Chirundu. This sample may be sufficient to compare changes for most behavioural indicators and STD prevalence rates over time at all sites combined, and for Livingstone and Chipata combined. It will not be sufficient to detect changes in Chirundu separately.

The 'take all' approach aimed to recruit as many sex workers as possible among the sex workers operating at the site at the time of the survey. It is difficult to estimate the success of this

approach. The mapping assured that most of the places where sex workers are active were visited. However, some places were overlooked. At the Livingstone site, for example, interviewers were not able to visit the motel where a significant number of sex workers are based and where a large number of commercial sexual contacts take place, because of the motel owner's refusal to participate in the study.

In addition, a certain number of women who are not sex workers were mistakenly recruited. The incentives given, and particularly the opportunity offered for a free physical exam and treatment, may have encouraged women to pretend that they were sex workers. At the beginning of the study, some women were discovered pretending and measures were taken to prevent this. However, it is possible that some women, particularly in Chipata, were still erroneously recruited.

Refusal to participate is reported to have been extremely low (0.5%). It is possible that not all women who refused were recorded and that the real response rate was lower. Because of the reasons mentioned above, it is possible that the sex workers recruited do not represent completely all sex workers at the sites. However, we do believe that the sample is sufficiently valid.

5.2. Socio-demographic profile of the study population

As expected, the sex workers interviewed were generally young. There was a very large proportion of teenagers (37%). This proportion is much higher than what is generally reported in other sex worker surveys in Africa. The survey was not able to identify a clear cause for this high proportion, although some contributing factors can be suggested. (1) It is possible that, as the HIV epidemic advances, there is a shift to younger women because of increased mortality in the older women; (2) there is anecdotical evidence that some clients look for younger sex workers believing that the risk for HIV and other sexually transmitted infections is less; and (3) the HIV epidemic may have changed the economic needs, forcing teenage girls into sex work.

The educational, religious and ethnic profile of the study population is probably similar to that of the general Zambian female population of that age in those areas. Compared to the data of the 1998 Demographic and Health Survey (DHS), the study population has a similar proportion of women who completed primary school, but fewer who completed secondary school. This could be due to the high proportion of teenagers.

About half of the women reported having been married, but only 6.8% said that they were currently married. An extremely high level of separation after marriage probably explains this. Similar results were found in the survey among sex workers in Ndola in 1998, where 43% of the women reported to be divorced, separated or widowed. The high proportion (69%) of married women who reported that their husband has other wives is probably due to a misunderstanding of the question (having considered any other partners as wives) rather than to a high number of polygamous marriages.

As expected, this is a highly mobile population with about half of the women originating from another province, and a median period of residence of only six years. This is comparable to survey findings among sex workers along truck stops in Tanzania[1].

[1] Nyamuryekung´e K, Laukamm-Josten U, Vuylsteke B, et al. STD Services for Women at Truck stops in Tanzania: Evaluation of Acceptable Approaches. E Afr Med J 1997;74: 343-347.

5.3. Sexual behaviour and sex work characteristics

The women reported starting sex work at a very young age (median 17 years). The reported median age at first sexual intercourse was 15 years, which means that the women engage in sex work very soon after becoming sexually active. The median period between sexual debut and sex work activities was one year, and almost half of the women (46%) reported starting sex work in the same year that they became sexually active (results not shown).

The median period of sex work was three years (results not shown), which is similar to findings in Ndola [1] and in other surveys. The median period of sex work at the current site was 1.7 years, which confirms their high mobility. Almost all women reported that they had done sex work elsewhere before. However, the option 'no sex work elsewhere' was not listed included on the questionnaire. Livingstone sex workers appeared to be more stable than those in Chipata and Chirundu. Sex workers came from as far away as the Copperbelt area.

The median number of clients per week (2.8) is similar to survey findings in Ndola (3 per week) and in some other African towns, but is much lower than what is found in sex worker populations in big African cities, such as Kinshasa, Nairobi and Abidjan. Only a small proportion of the women can be considered as 'hard core' sex workers with at least three clients on a working day. It is not surprising to see that one-third reported that they had an economic activity apart from sex work. Similar to what is found in other surveys in Africa, more than half of the women (58%) reported that they support not only themselves, but others as well. This is not unusual in Africa where every individual has a responsibility to take care of the other members of the family network.

Most women (71%) were living without a partner, but 50% had a sexual partner in the past week who was not required to pay. For most of these women, this was a partner they saw regularly (86% reporting sexual intercourse with this partner at least twice in the past month). It is disturbing that more than one-third (37%) of these women reported that they had been forced to have sexual intercourse during the past year. This figure is high in comparison with reports from other similar surveys[2].

5.4. Condom use

Condom use with clients, as reported by the women, was markedly higher than condom use reported by the sex workers in Ndola. Fifty-four percent of respondents said they had used a condom during their last sexual contact, while in Ndola only 28% had used condoms. Almost 20% claimed that they always used a condom with clients. Condom use with clients could therefore be considered better than expected, particularly since specific interventions have not been undertaken yet with this population. Nevertheless, condom use is still far from satisfactory, with plenty of room left for improvement. As expected, condom use with non-paying partners was less frequent than with clients. However, the difference is less than what is generally found in other surveys, which is encouraging.

[1] Morison L, Weiss HA, Buvé A, et al. Commercial Sex and the Spread of HIV in four Cities in Sub-Saharan Africa. AIDS. In press.

[2] Enquête de surveillance de comportements relatifs aux MST/SIDA en Côte d'Ivoire (BSS 1998). Rapport d'analyse des données de l'enquête auprès des prostituées. ENSEA, 1999.

About one-third of the women who had not used condoms at the last sexual contact (with a client or non-paying partner) cited partner's objection as their reason for not using condoms. This confirms that interventions with the clients and partners are crucial to enhance condom use. However, a still greater proportion of women said that they themselves didn't like condoms, didn't think of it, or thought it was not necessary.

A lack of availability of condoms was only mentioned by a small proportion of women, and almost all women said they could obtain condoms, if needed, in less than one hour. The presence of the Society for Family Health's (SFH) social marketing programme at all three sites and the public health services' condom distribution efforts explain the easy access to condoms reported by the women. Easy access to condoms is one of the indicators defined by the WVI project, and it may be difficult to further improve this indicator.

Female condoms were reasonably well known and used by the studied population, particularly in Chirundu. More than half of the population had heard of them and 11% had used them, probably because female condoms are also socially marketed by SFH. They are not used widely enough to replace the male condom, however.

5.5. Sexually Transmitted Diseases

Almost all of the women had heard about STDs, but when asked to list symptoms, 15% could not mention any. Only 10% mentioned spontaneously all four major STD symptoms in women (genital discharge, genital ulcers, pelvic pain and inguinal swelling).

About one-quarter (24%) reported having a genital discharge in the past year. This is lower than expected and lower than findings from other surveys. One explanation could be that the translation in local language used for 'genital discharge' may have been interpreted as 'genital lesions' instead of 'genital discharge'.

Care-seeking behaviour for STD symptoms was similar to behaviour reported in other studies of STD care seeking in African women. Still one-quarter of the symptomatic women do not seek care at a health facility. Traditional healers remain important care providers for genital sypmtoms. The majority of women do not inform their partners or change their sexual behaviour when symptomatic.

5.6. Family planning

The women were asked about their family planning practices. As expected, family planning practices were poor. More than half of the women did not use any FP method, and of those who did, a large proportion used condoms as the sole method. The women were not asked if they ever had an unwanted pregnancy or induced abortion because this question was considered too sensitive. Instead interviewers asked the women if they ever lost a pregnancy. About one-third responded 'yes'. Because of the young age of the respondents and the poor family planning practices, it is possible that a proportion of these lost pregnancies were induced abortions. It is extremely important to include FP activities with STD/HIV interventions undertaken with this population.

5.7. Knowledge and attitudes related to HIV

The women's knowledge of modes of transmission and methods of prevention was generally good. At this stage, almost all women know about HIV/AIDS, know that healthy looking persons can be infected, and most know that infection can be prevented by abstinence, faithfulness or condom use. The percentages of women who knew these three ways to prevent HIV infection were much higher than the percentages found in the 1996 DHS, where only 28.6%, 48.7%, and 38.4% of women knew that they could avoid HIV by abstinence, faithfulness or condom use respectively. This could be explained by our study population being more at risk and therefore better informed, but also by the fact that the questions in our questionnaire were prompted, while the questions in the DHS survey require a spontaneous response. This could also explain why a large proportion reported that HIV could be transmitted by mosquito bites or sharing meals. The proportion of women that can cite two HIV prevention strategies measures the WVI project's indicator on HIV knowledge. This proportion is already high at baseline (85%) and significant improvement may be difficult to achieve. But, as the Ndola study shows, a high knowledge of HIV does not necessarily mean that the women consider themselves at risk.

While most of the women knew that an infected pregnant woman or a breastfeeding mother can infect her child, only a small proportion of the women knew that treating pregnant women could prevent these infections. This is probably because the therapy for preventing mother-to-child transmission is still not widely available in Zambia.

5.8. HIV Voluntary counselling and testing

HIV Voluntary Counselling and Testing (HIV VCT) facilities are still relatively new in Zambia and not yet widely available. Even so, two-thirds of the women said that they had access to confidential HIV testing. The response was the same for women from Chirundu, where there is no facility offering voluntary HIV testing. Probably the women were referring to possibilities for testing in Lusaka, or another big city. Twelve percent of the women said they had already been tested once, but almost half said it was not on a voluntary basis, and one-quarter never found out the test result. The questionnaire did not ask for the reasons for testing if not voluntary, or why the women never found out the result. More in-depth qualitative research will be needed to explore these issues further.

5.9. Prevalence of sexually transmitted infections

The prevalence of sexually transmitted infections is extremely high in this population. Almost one quarter of the women is infected with either gonorrhoea or genital chlamydia infection, almost one third with syphilis and almost half with trichomoniasis. Particularly the women surveyed in Livingstone are highly affected. Prevalence rates reached 23% for gonorrhoea and 36.5% for syphilis.

The levels of sexually transmitted infections found in our survey are similar to what is found in other sex worker populations in Africa. In comparison to the population surveyed in Ndola, our population has a similar level of trichomoniasis infection, a somewhat lower level of genital chlamydia and syphilis infection (the Ndola survey found prevalence rates of respectively 9% and 42%) and a higher level of gonorrhoea infection (15% in Ndola).

The high STI prevalence rates conflict somehow with the relatively low level of number of clients and high level of reported condom use. They indicate that these women remain at extremely high risk for STI and HIV and that appropriate prevention interventions and STD treatment services are urgently needed.

5.10. Generalizability to other sites

For logistic and budget issues, only three of the five project VWI sites were included in the sample, so we cannot make any conclusions about characteristics of sex workers at the other sites. In general, socio-demographic characteristics and characteristics of sex work were quite similar between the three sites and the characteristics measured in Ndola in 1998. Thus we believe that this sample is representative -- in terms of these characteristics for sex worker populations -- of places of similar size along major transport routes in Zambia.

Condom use and knowledge, attitudes and behaviour related to HIV, STD and FP were often significantly different between sites. These characteristics are more dependent on exposure to several types of interventions and, therefore, more site specific.

5.11. Comparison with results from truck driver survey

Simultaneously with the sex worker's survey, investigators interviewed truck drivers passing through at the same border post, using a similar questionnaire. The results of this survey are presented in a separate report (*Round 1 Behavioral Surveillance Survey Zambia 2000: Long Distance Truck Drivers*
Reports from sex workers and truck drivers were quite different regarding condom use in commercial sex acts. The truck drivers reported a 92% use at the last commercial sex contact, while sex workers only reported a 54% use. Ninety-six percent of truck drivers also claimed that they 'always used' or 'almost always used' condoms for commercial sex, while only 25% of sex workers reported this. Only 7% of the truck drivers reported that it was the sex worker who suggested condom use, while 62% of the sex workers said it was their suggestion. Comparison is risky because truck drivers are only a part of the sex worker's clientele (particularly in bigger towns such as Livingstone and Chipata), and truck drivers frequent sex workers at sites other than the site where they were interviewed. However, it is likely that at least part of the discrepancy is explained by reporting bias by one or both groups.

Both groups answered similarly on knowledge and availability of the male condom. Sex workers seemed to procure condoms more often at the market, while truck drivers got condoms from pharmacies and friends. A similar proportion of truck drivers and sex workers knew about STDs and, not surprisingly, sex workers knew more about the symptoms in women, while the truck drivers knew more about symptoms in men. The sex workers had a better STD care seeking profile than drivers did. They more often sought advice from a health facility, told their partner and more frequently changed their behaviour when experiencing symptoms.

Knowledge, opinions and attitudes related to HIV were similar among these two groups, although sex workers more often reported that breastfeeding can transmit HIV and that treating a pregnant woman can prevent infection. The truck drivers more frequently reported having access to confidential HIV testing than the sex workers. They also were voluntarily tested for HIV and

found out their result more often than the women. This can be explained by the higher mobility of the truck drivers who have access to testing facilities in a wider area.

6. Conclusion

The sex worker population found at the three sites was young, with a high proportion of teenagers, mostly living alone and similar to the general population in terms of educational level, religion and ethnicity. Most of the women had only a few clients a week and were quite mobile. Further ethnographic work is warranted to understand the young age of entry into sex work and the reported low numbers of partners.

Knowledge and behaviour related to HIV, STDs and family planning often varied between sites. In general, knowledge related to HIV was good, and condoms were available. Reported condom use, both with clients and non-paying partners, was higher than what is often found in similar settings elsewhere in Africa, but is still far from sufficient. Knowledge and behaviour related to STD symptoms can be improved. Family planning practices were poor, and the availability and use of counselling and testing facilities needs to be explored further. The extremely high levels of sexually transmitted infections, similar to what is found in other sex worker populations in Africa, confirm the continued high vulnerability of this population and the need for strengthening interventions.

The WVI project should focus on enhancing condom use, both male and female, through peer and other education programs with the sex workers, their clients and their regular partners. Knowledge and care seeking for STD symptoms could be improved by regular visits to trained health care providers in selected health facilities where access barriers have been removed. These health facilities should also develop activities to enhance sex workers' use of family planning. The possibility of offering HIV VCT facilities should be explored further.

7. ANNEX

FAMILY HEALTH INTERNATIONAL (FHI)
HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEYS (BSS)
FOR USE WITH FEMALE SEX WORKERS (FSWs)
ZAMBIA - 2000

FAMILY HEALTH INTERNATIONAL (FHI)
HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEYS (BSS)
FOR USE WITH FEMALE SEX WORKERS (FSWs)
ZAMBIA - 2000

001 QUESTIONNAIRE IDENTIFICATION NUMBER |___|___|___|

002 TOWN: Livingstone

003 PROVINCE_____

04 SITE_____

Introduction: "My name is… I'm working for Tropical Disease Research Centre and Family Health International. We're interviewing people here in [name of city, region or site] in order to find out about people's HIV/AIDS knowledge, attitude, and risk behavior. Following this interview you will be asked to provide specimens for Sexually Transmitted Diseases and be given treatment. Have you been interviewed in the past few weeks for this study? **IF THE RESPONDENT HAS BEEN INTERVIEWED BEFORE, DO NOT INTERVIEW THIS PERSON AGAIN.** Tell them you cannot interview them a second time, thank them, and end the interview. If they have not been interviewed before, continue:

Confidentiality and consent: "I'm going to ask you some very personal questions that some people find difficult to answer. Your answers are completely confidential. Your name will not be written on this form, and will never be used in connection with any of the information you tell me. You do not have to answer any questions that you do not want to answer, and you may end this interview at any time you want to. However, your honest answers to these questions will help us better understand what people think, say and do about certain kinds of behaviors. We are only talking with women who have sex in exchange for money. Can I go ahead? We would greatly appreciate your help in responding to this survey. The interview will take about 30 minutes to ask the questions. Would you be willing to participate?"

_____

(Signature of interviewer certifying that informed consent has been given verbally by respondent)

1 Interviewer visit

	Visit 1	Visit 2	Visit 3
Date			
Interviewer			
Result			

Result codes: Completed 1; Respondent not available 2; Refused 3; Partially completed 4; Not completed due to language 5; Other 6.

005 INTERVIEWER: Code [____|____] Name_____

006 DATE INTERVIEW: ______ \ _____

007 LANGUAGE USED_____

CHECKED BY SUPERVISOR: Signature _____ Date _____

AKATIMU: Dzinai langa ndine ……..Digwila nchito kwa …….. Tikuzuwisani inu anthu kuno…….chura dzimna ya kwamene mukala. Kpena mutauni komboni kapena uchura kuti kupoto olo kumwela. Kuti tiziwe bwino momwe tinga peukele matenda akachilombo kapena unena kuti AIDS. Kodi ana kuziwisakona pamasabata ochepa apita kubuyoku. Pazamatenda ya HIV/AIDS? Kodi mwatunsi dwa po kale mufunsu, oligwan na aya kwa milungu ingono yapita. Pakuti muna finsidwa kale sitiza kufunsani kachiwili. Zikhomo.

ZACHISISI: Chisnisi ndi chivomelezo: "Ndiza kufusani mafunso a chisinsi yamene anthu ena apeza mabvuto kuyanka. Mayankho anu azankhala achinsisi kwanbili. Anga khale zina lanu siliza lembedwa papepa laii. Ndipo chisis chanu chonse chomwe muzaniuza sichizalembvwa. Silizangwilisilidwa nchito ndi mau alionse mudzaniliaza ine. Simukupalikizwa kunyanka mafunso yamene simufuna kuyanka, ndipo mulinampabvu zosiliza kufunsa uku panthawi iliyonse yamene mwafuna. Koma mayanko anu yapansi pamutima kumafunso aya azatitandiza ife kunvesesa kwambili chimena anthu aganiza, akamba ndi kuchita pa minkalidwe ina. Tikamba chambe ndi amuna ondesa magalimoto amaulenda autali. Kodi mujuena? /takamba chabe pa mkazi wachiwele wele ofuna ndalama uchokela nsira zauchelewele. Kapena unenakuti chigonegone.Tiza oonga kwambili kutandizo lanu mukuyanka mafunso aya. Mafunso aya azalenga chifupi fupi mpindi akumu atatu kodi mungafune upezekako – kapena kuti 30 minutes. Kodi munyafune ku lenga mabli (kuyanka).

_____

(Signature of interviewer certifying that informed consent has been given verbally by respondent)

The FEMALE SEX WORKER questionnaire includes the following sections:

Section 0 – Questionnaire identification data (6 codes)	
Section 1 – Background characteristics	13 questions
Section 2 – Marriage, family, work	9 questions
Section 3 – Sexual history: numbers and types of partners	3 questions
Section 4 – Sexual history: paying clients	6 questions
Section 5 – Sexual history: non-paying partners	6 questions
Section 6 – Male and female condoms	7 questions
Section 7 – STDs	5 questions
Section 8 – Knowledge, opinions, and attitudes towards HIV/AIDS	16 questions

TOTAL NUMBER OF QUESTIONS: 65 questions

FHI 2000 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs

Section 1: Background characteristics

No.	Questions and filters	Coding categories	Skip to
Q101	In what month and year were you born? Kodi mwadzi uti ndi chaka chomwe munabadwa?	MONTH [__|__] DON'T KNOW MONTH 88 NO RESPONSE 99 YEAR [__|__] DON'T KNOW YEAR 88 NO RESPONSE 99	
Q102	How old were you at your last birthday? Kuchokela mchaka unabadwa ndi mwezi uli ndi zaka zingati? **(Compare/reconcile Q101 & 102 if needed)**	AGE IN COMPLETED YEARS [__|__] DON'T KNOW 88 NO RESPONSE 99 **ESTIMATE BEST ANSWER**	
Q103	Have you **ever** attended school? Kodi unapita kusukulu?	YES 1 NO 2 NO RESPONSE 9	® **Q106**
Q104	What is the highest level of school you completed: primary, secondary or higher? Kodi mapunzilo yoko, ndiyapamwamba bwansi? **CIRCLE ONE**	PRIMARY 1 SECONDARY 2 HIGHER 3 NONE 4 NO RESPONSE 9	
Q105	How many total years of education have you **completed** up to now? Kodi ndizaka nzingati zomwe watsiliza pamapunzilo yako?	# YEARS COMPLETED [__|__] NO RESPONSE 99	
Q106	How long have you lived here in (NAME OF COMMUNITY/ TOWN)? Kodi mwapita nthau zingati pa	YEARS [__|__] MONTHS[__|__] WEEKS [__|__] RECORD 00 IF LESS THAN 1 WEEK	

No.	Questions and filters	Coding categories	Skip to
Q107	Where were you born? Nikuti komwe unabandwila?	Copperbelt province 1 City of Lusaka 2 Kabwe Urban/Rural 3 Within Southern Province 4 Within Eastern Province 5 Other (Specify) ---------- *6*	
Q108	What is your denomination or church? **8. CIRCLE ONE.** Kodi muli achipempezo chiti	Catholic 1 United Church of Zambia 2 Seventh Day Adventists 3 Reformed Church in Zambia 4 Pentecostals 5 Other (Specify)_____6 NO RELIGION 0 NO RESPONSE 99	
Q109	To which ethnic group/tribe do you belong? ***CIRCLE ONE.*** *Kodi munabadilwa muziko liti?*	Lozi 1 Tonga 2 Nsenga/Ngoni 3 Bemba 4 Lala 5 Lamba 6 Kaonde 7 Other (Specify)_____ 8 NO RESPONSE 99	

No.	Questions and filters	Coding categories	Skip to
Q110	During the last 4 weeks how often have you had drinks containing alcohol? Would you say **.....READ OUT** **CIRCLE ONE** Kwa masabata anayi apitakubuyokui ndikangati mwamwa to imwa imwa kapena mowa?	Every day 1 At least once a week 2 Less than once a week or never 3 DON'T KNOW 88 NO RESPONSE 99	
Q111	Some people have tried a range of different types of drugs. Which of the following, if any, have you tried? Anthu ena osiyanasiyana ayesa kupeza njila zosin siyana kupeza munkhwala yosina siyana, chosatila chisowa? **READ LIST.** **CIRCLE ALL THAT APPLY.**	YES NO DK NR Daga (Icamba) 1 2 8 9 Heroin 1 2 8 9 Cocaine 1 2 8 9 Mandrax 1 2 8 9 Other _____	

FHI 2000 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs

Section 2 Marriage, family, work

No.	Questions and filters	Coding categories	Skip to
Q201	Have you ***ever*** been married? Kodi munali kwatilapo?	YES 1 NO 2 NO RESPONSE 3	 ® **Q203** ® **Q203**
Q202	How old were you when you first got married? Unali ndi zaka zingati pamwe unayamba kukwatila?	Age in years [__|__] DON'T KNOW 88 NO RESPONSE 99	
Q203	Are you ***currently*** married or living with a sexual partner? Kodi sopano muliokwatiwa kapena mu pikala ndimwamuna ameno mugona naye?	currently married, living with husband 1 currently married, living with other sexual partner 2 currently married, not living with husband or any other sexual partner 3 not married, living with sexual partner 4 not married, not living with sexual partner 5 NO RESPONSE 6	® **Q204** ® **Q204** ® **Q204** ® **Q205** ® **Q205** ® **Q205**
Q204	Does your husband/partner have other wives? Kodi abwana anu ali ndiyakazi ena?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q205	At what age did you first receive money for sex? Unali zaka zingati pomwe unayamba ulanda ndalama zauchiwele wele?	AGE IN YEARS [__|__] DON'T KNOW 88 NO RESPONSE 99	
Q206	Do you earn money-doing work other than sex work? Kodi siunga peze ndalama mchita nchito kuposa uchita uchiwele wele?	YES 1 NO 2 NO RESPONSE 9	 ® **Q208**

No.	Questions and filters	Coding categories	Skip to
Q207	What is this other work? Ndi ciyani icho chopotsa nchito? **9. MULTIPLE ANSWERS POSSIBLE**	**1** Y N Marketeer 1 2 Waitress 1 2 Kaponya 1 2 Owns restaurant 1 2 Other_____ 1 2 DON'T KNOW 1 2 NO RESPONSE 1 2	
Q208	Are you supporting anyone such as children, parents or others now? Ndani utandiza makolo kapena ana kwalomba apa?	YES 1 NO 2 NO RESPONSE 9	® **Q301**
Q209	How many people are you supporting now? Ndi anthu angati utandiza sopano?	NUMBER OF PEOPLE [__|__] DON'T KNOW 88 NO RESPONSE 99	

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Section 3 Sexual history: numbers and types of partners

No.	Questions and filters	Coding categories	Skip to
Q301	Now I'd like to ask you some questions that *may be difficult and too personal to answer. But like I said at the beginning, your answers to these questions will be treated with strict confidentiality and will not be linked to you in any way. The questions that will follow will all be about your sexual activities and partners…* At what age did you first have sex? Unali ndi msuku ofika poti pomwe unayamba ugonana ndiyakazi?	AGE IN YEARS [__|__] DON'T REMEMBER 88 NO RESPONSE 99	
Q302 ab	Among all of your partners in the last seven days (one week), how many were: - a) PAYING CLIENTS: That is, how many were partners who you had sex with in exchange for money? Aali angati asumbali omwe unagonanwo mujila yotsitana ndi ndalama? - b) NON-PAYING PARTNERS: How many were partners you have sex with who do not give you money in exchange for sex (INCLUDE HUSBAND, LIVE-IN SEXUAL PARTNERS, NON REGULAR)	PAYING CLIENTS [__|__] DON'T KNOW 88 NO RESPONSE 99 NON-PAYING PARTNERS [__|__] DON'T KNOW 88 NO RESPONSE 99	

No.	Questions and filters	Coding categories	Skip to
Q303	With how many *different* sexual partners in total have you had sex with during the last seven days (one week)? Ndi vingati visumbali vonse vomwe unagonana nayo kwasabata umodzi kapena kuti matsuku asanu ndi awili? **INCLUDE HUSBANDS(S), LOVER(S), Clients, etc..** **NOTE: CHECK TOTAL NUMBERS OF PARTNERS IN Q302 AND Q303 TO MAKE SURE THE NUMBERS MATCH.**	*NUMBER IN LAST 7 DAYS* *[__|__]* DON'T KNOW 88 NO RESPONSE 99	
Q304	Where else did you do sex work before coming here? Ndi kuti kwina komwe munachita zadma mukalibe umbwela kundela lino?	Copperbelt province 1 City of Lusaka 2 Kabwe Urban/Rural 3 Within Southern Province 4 Within Eastern Province 5 Other (Specify)---------- 6	
Q305	How long have you been doing sex work in this community? Ndi kwanthausi itali bwansi yomwe wakhala ukuchita zadama kudela uno? (STATE CITY WHERE YOU ARE DOING INTERVIEW)	**11.RECORD THE EXACT YEARS** YEARS [__|__] MONTHS[__|__] WEEKS [__|__] RECORD 00 IF LESS THAN 1 WEEK	

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Section 4 Sexual history: paying clients

No.	Questions and Filters	Coding categories		Skip to
Q401	On the last ***day*** you worked, how many clients *(people who gave you money in exchange for sex)* did you have? Tsiju losiliza yomwe unaseweza ndiya ngati atenga tenga anakupatsa ndalama kodi anakupasa?	Number of clients DON'T KNOW NO RESPONSE	|__|__| 88 99	
Q402	The **last time** you had sex with a client *(someone who gave you money in exchange for sex)*, how much money did you receive? Ija nthawi imwne unagonana ndi wa tengatenga munjila yositana ndi ndalama kodi anakupasa?	List amount of money in local currency DON'T KNOW NO RESPONSE	 88 99	
Q403	The **last time** *(round)* you had sex with a client, did you and your client use a condom? Uja tsiku losilizila yomwe munagonana ndi watenga tenga kodi munasewenzesa mpila uja wa kondomu?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	→**Q405**
Q404	Who suggested condom use that time? **12. CIRCLE ONE** Chifukwa ninji iwe ndi watenga tenga nthawi ija munasewenzesa mpila wa kondomu?	Myself Client Joint decision DON'T REMEMBER NO RESPONSE	1 2 3 8 9	→**Q406** →**Q406** →**Q406** →**Q406** →**Q406**
Q405	Why didn't you and your client use a condom that time? Any other reasons? Chifukwa ninji iwe ndi watentgatenga nthawi ija munasewenzesa mmpila wa kondomu? **CIRCLE ALL ANSWERS MENTIONED**	Not available Too expensive Partner objected Don't like them Used other contraceptive Didn't think it was necessary Didn't think of it Itching Other_____ DON'T KNOW NO RESPONSE	Y N 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	

Q406	In general, how often did you and your clients use condoms over the last 30 days, that is since the beginning of February? Would you say every time, almost every time, some times or never.. Apa tikuti ndi chifukwe ninji iwe ndi watenga tenga wako muna sweenzesa mpila kondomu kopitilira pa matsiku makhumi atatu?	EVERY TIME 1 ALMOST EVERY TIME 2 SOMETIMES 3 NEVER 4 DON'T KNOW 8 NO RESPONSE 9	

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Section 5 Sexual history: non-paying partners

No.	Questions and Filters	Coding categories	Skip to
Q501	**13. FILTER: CHECK Q302b** HAS NON-PAYING PARTNER [___] ↓ Ndilibe anzanga olipila	DOES NOT HAVE NON-PARTNER [__] →	→**Q601**
Q502	Think about your **most recent** non-paying sexual partner. How many times did you have sexual intercourse with this person over the past 30 days? *That is since beginning of February*, Gnizirani uja wadama walomba apa osaripila, kodi ndi nthawi zingati mugonana naye yuy munthu koposa pamasiku makhumi atatu?	Number of times |__|__ DON'T KNOW | NO RESPONSE 88 99	
Q503	The **last time** you had sex with a NON-PAYING partner, did you and your partner use a condom? Nthawi yosilizira munagonana ndi wadama osaripila, kodi iwe ndi mzako wadama mu nasewenzesa mpila wakondomu?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	→**Q505**

No.	Questions and filters	Coding categories			Skip to
Q504	Who suggested condom use that time? **14. CIRCLE ONE** Anagniza kusewenzesa kondomu ndani?	Myself My partner Joint decision NO RESPONSE	1 2 3 9		→**Q506** →**Q506** →**Q506** →**Q506**
Q505	Why didn't you and your partner use a condom that time? Any other reason? Chfikwa ninji iwe ndi msumbali wako muna swewenzesa kondomu pa nthawi ija? **CIRCLE ALL ANSWERS MENTIONED.**		Y	N	
		Not available	1	2	
		Itching	1	2	
		Too expensive	1	2	
		Partner objected	1	2	
		Don't like them	1	2	
		Used other contraceptive	1	2	
		Don't need to	1	2	
		Didn't think of it	1	2	
		Could have reduced the price	1	2	
		Other_____	1	2	
		DON'T KNOW	1	2	
		NO RESPONSE	1	2	
Q506	In general, how often did you and your non-paying partner(s) use a condom over the last 12 months? **Would you say every time, almost every time, sometimes, or never?** Tinene kuti nichiyani chimene ivwe ndi msumbali wako chinapasa kuti musewenzese kondomu kwameezi khumi na awili?	EVERY TIME ALMOST EVERY TIME SOMETIMES NEVER DON'T KNOW NO RESPONSE	1 2 3 4 8 9		
Q507	During the past 12 months, did any of your sexual partner(s) force you to have sex with them even though you did not want to have sex? Kuchoka meezi khumindi iwili yapita kubuyoku kuli nzanu ana kupatikizani ku gona naye inu chotsafuna?	YES NO NO RESPONSE	1 2 9		

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Section 6 Male and female condoms

No.	Questions and Filters	Coding categories		Skip to
Q601	Have you ever *heard of* a male condom? ***(Show picture or sample of one.)*** I mean a rubber object that a man puts on his penis before sex. Kodi munanvelako za kondomu ya chimuna? Uku ndikutatauza kuti uja mpila uvala amuna kumuna nthawi ija mufuna ugonana.	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	 →**Q608** →**Q608**
Q602	Have you and <u>*any*</u> sexual partner <u>*ever*</u> used a male condom? ***(Show picture or sample of one.)*** (The respondent may not have used a condom with partners in sections 4-6, but may have used a condom at some other time in the past.) Munagonapo nzanu omwe ana sewenzesa kondomu ya chimuna? Sonyezani chifanikiso chache	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	→**Q604**
Q603	Do you know of any place or person from which you can obtain male condoms? Ndimalo oti kapena munthu tinga peze mpila wakondomu wachimuna?	YES NO NO RESPONSE	1 2 9	→**Q607**
Q604	Which places or persons do you know where you can obtain male condoms? PROBE AND RECORD ***ALL*** ANSWERS Any others? Ndimalo oti kapena anthu tinga pezeko makondomu achimuna?	Shop Pharmacy Market Clinic Hospital Family planning center Bar/guest house/hotel Peer educator Friend OTHER_____ ___ NO RESPONSE	Yes No 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	

No	Questions and filters	Coding categories		Skip to
Q605	How long does it take you to obtain a condom close to your house or to where you work? Ndipatali bwanji pomwe papezeka mpila wakondomu wachimuna, kapena wachikazi kufupi ndi nyumba yanu kapena komwe musewenzela?	Under 1 hour 1 hour to 1 day More than 1 day DON'T KNOW NO RESPONSE	1 2 3 8 9	
Q606	How many condoms do you have on-hand right now (in your room)? Would you please show them to me? Ulindi makondomu angati kumanja yako panthawi ino ndapapata ndiwonese amene?	Number of condoms on-hand NO RESPONSE	______ 99	
Q607	Have you ever *heard of* a female condom? **(Show picture or sample of one.)** I mean a rubber object that a woman puts into her vagina before sex. Kodi munaveko zakondomu ya chikazi?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	 →**Q701** →**Q701**
Q608	Have you *ever used* a female condom? **(Show picture or sample of one.)** Kodi munasewesapo kondomu ya chikazi? Onesani chituzituzi kapena chitanikiso chace.	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	
Q609	Do you know any place or person where you can obtain female condoms? Kodi malo oti ovwe uzimwa kapena anthu oji omwe udziwa kumene unga peze makondomu achikazi?	YES NO NO RESPONSE	1 2 9	 →**Q701**

No.	Questions and filters	Coding categories	Skip to
Q610	Which places or persons do you know where you can obtain female condoms? Any others.. Ndi malo oti ena kapena anthu omwe udziwa kumene unga peze makondomu achikazi? **PROBE AND RECORD *ALL* ANSWERS**	Yes No Shop 1 2 Pharmacy 1 2 Market 1 2 Clinic 1 2 Hospital 1 2 Family planning center 1 2 Bar/guest house/hotel 1 2 Peer educator 1 2 Friend 1 2 OTHER_____ 1 2 NO RESPONSE 1 2	

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Section 7 STDs

No.	Questions and filters	Coding categories	Skip to
Q701	Have you ever heard of diseases that can be passed through sexual intercourse? Kodi munandwalapo matenda otenea kuchimuna piapena kuchkazi?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	® **Q704**
Q702	Can you describe any symptoms of STDs in women? ….. Any others? Kodi munga fotokozele mwasatane satane zindikilo zamatandaya otengela kuchikazi olo kubakazi? **DO *NOT* READ OUT THE SYMPTOM S** **CIRCLE 1 FOR ALL MENTIONED.** **CIRCLE 2 FOR ALL *NOT* MENTIONED.** **MORE THAN ONE ANSWER IS POSSIBLE.**	Yes No ABDOMINAL PAIN 1 2 GENITAL DISCHARGE 1 2 FOUL SMELLING DISCHARGE 1 2 BURNING PAIN ON URINATION 1 2 GENITAL ULCERS/SORES 1 2 SWELLINGS IN GROIN AREA 1 2 ITCHING 1 2 OTHER _____1 2 NO RESPONSE 1 2	

No.	Questions and filters	Coding categories	Skip to
Q703	Can you describe any symptoms of STDs in men? ….. Any others? Can you describe any symptoms of STDs in men? ….. Any others? **DO *NOT* READ OUT THE SYMPTOMS** **CIRCLE 1 FOR ALL MENTIONED.** **CIRCLE 2 FOR ALL *NOT* MENTIONED.** **MORE THAN ONE ANSWER IS POSSIBLE.**	Y N GENITAL DISCHARGE 1 2 BURNING PAIN ON URINATION 1 2 GENITAL ULCERS/SORES 1 2 SWELLINGS IN GROIN AREA 1 2 OTHER _____1 2 NO RESPONSE 1 2	
Q704	Have you had leakage (a genital discharge) during the past 12 months? That is since March last year. Kodi unakhalapo ndizotupatupa kwa meezi iyi khumi ndiwili yapita kubu?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q705	Have you had a sore on your private parts (genital ulcer/sore) during the past 12 months? That is since March last year. Kodi unakhalapo chilonda chaka chatachi?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	

No.	Questions and filters	Coding categories	Skip to
Q706	**FILTER: CHECK Q704 AND Q705** HAD DISCHARGE OR ULCER IN LAST 12 MONTHS ↓ [___] Kodi munakalapo kuchokda nthawi ija munali ndi tulanda kukazi.	NO DISCHARGE OR ULCER [__]→ IN LAST 12 MONTHS	® **Q707**
	Did you do any of the following the last time you had a genital ulcer/sore or genital discharge: ***READ OUT. MORE THAN ONE ANSWER IS POSSIBLE.***		Y N
	a. Seek advice/medicine from a government clinic or hospital? - Pepani nzelu makwala kuchokela mutupatala tungono kapena muzipatala dzikudzikulu za boma?		1 2
	b. Seek advice/medicine from a workplace clinic or hospital? - Pepani tandizo ya makwala kuchokela monga kutupatal tung'ono olo kuzipatala dzikulu?		1 2
	c. Seek advice/medicine from a church or charity-run clinic or hospital? - Pepani tandizo ku chokela mmacharichi nditupatalla twina twache olo mmudzipatala zikulu? -		1 2
	d. Seek advice/medicine from a private clinic or hospital?		
	e. Seek advice/medicine from a chemist?		1 2
	f. Seek advice/medicine from a traditional healer? Pepani tandizo akale kung'anga?		1 2
	g. Bought capsules on the street?		1 2
	h. Took medicine you had at home? Sewenzesani mukwala mulinawo munyuumba?		1 2

	i. Tell your sexual partner about the discharge/ STD? Muuze msumbali wako pazamatenda achiwele wele?		1 2	
	j. Stop having sex when you had the symptoms? Siyani ugona ndi makazi mukaona zizindikiro zamatenda achiwele wele?		1 2	
	k. **Always** use a condom when having sex during the time you had the symptoms? Sewenzesani makaondomu pogona ndi mkazi panthawi ija muona kuti muli ndizi dzinditkiro zamatenda a cawele wele?		1 2	
Q707	Are you currently using any method to protect yourself from getting pregnant?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	® **Q709**	
Q708	Which methods are you currently using to protect yourself from getting pregnant?	Yes No TRADITIONAL METHOD 1 2 ORAL CONTRACEPTIVE PILLS 1 2 INJECTION 1 2 NEO PLANT 1 2 IUD 1 2 MALE CONDOMS 1 2 FEMALE CONDOMS 1 2 SPERMICIDES 1 2 DIAPHRAGM 1 2 NATURAL 1 2 OTHER _____1 2 NO RESPONSE 1 2		
709	Have you ever lost a pregnancy?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9		

Section 8 Knowledge, opinions, and attitudes

No.	Questions and filters	Coding categories	Skip to
Q801	Have you ever heard of HIV or the disease called AIDS? Kodi unaveleko za HIV olokuti pena AIDS kapena tinenekuti matanda aliyondeyonde?	YES 1 NO 2 NO RESPONSE 9	→**Q901**
Q802 a	Do you know anyone who is infected with HIV or who has died of AIDS? Kodi kuli wamene uziwa ondwala matenda akaliyonde yonde angakale omwe anamwalira?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	→803 →803 →803
Q802 b	Do you have a close relative or close friend who is infected with HIV or has died of AIDS? Kodi uli ndi mbale wako kapena mzako ali ndi mataenda akali wondne wonde angakale omwe ana mwalira?	YES, A CLOSE RELATIVE 1 *YES, A CLOSE FRIEND 2* NO 3 NO RESPONSE 9	
Q803	Can people protect themselves from the HIV virus by using a condom **correctly every time** they have sex? Kodi anthu anga dzichinjilize yioka pamatenda aya usenzesa tumipilatao chendwa kuti makondomu nthawei lili yotse yomwe mufuna kugona ndi wamkazi?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q804	Can a person get the HIV virus from mosquito bites? Kodi munthu angayabule matenda ya yakali yonde yonde kuchola kuzuzu kapena kuti yimbu?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	

No.	Questions and filters	Coding categories	Skip to
Q805	Can people protect themselves from the HIV virus by having **one uninfected faithful** sex partner? Kodi munthu angazchinjilize iyo okha paka chilombo kamatenda yakaliyone yonde?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q806	Can people protect themselves from the HIV virus by abstaining from sexual intercourse? Kodi anthu angazi chinjilize kumatenda aya ngati mupeuka chigone gone nde akazi achiwelewele?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q807	Can a person get the HIV virus by sharing a meal with someone who is infected? Kodi munthu angayambule AIDS kudya pamodzi nsima?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q808	Can a person get the HIV virus by getting injections with a needle that was already used by someone else? Kodi munthu angayambule AIDS ngati walasindwa nyeleti imodzi ndi muntu uja ondwala matenda ya AIDS?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q809	Do you think that a healthy-looking person can be infected with HIV, the virus that causes AIDS? Kodi ukumbuka kuti anthu aja oyina unenepa bwino angakale ndi matenda akaliyonde yonde?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q810	Can a pregnant woman infected with HIV or AIDS pass the virus to her unborn child? Kodi mkazi wamimba ali nikachilomobo ka AIDS mwana naga yambule?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	® **Q812** ® **Q812**

No.	Questions and filters	Coding categories	Skip to
Q811	What can a pregnant woman do to lower the chance of passing HIV to her unborn child? Kodi ndi chiyhani chimene mkazi wamimba anga chite kuti apeuse mwana wake kuyambula matenda ya AIDS? **15.** **16. DO NOT READ LIST CIRCLE ALL THAT ARE MENTIONED.**	Y N TAKE MEDICATION (Antiretrovirals) 1 2 Other_____ 1 2 DON'T KNOW 1 2 NO RESPONSE 1 2	
Q812	Can a woman with HIV or AIDS pass the virus to her newborn child through breastfeeding? Kodi mkazi wamimba ndi HIV kaya tuzilombo twa AIDS mwana anga yambule chifukwa choyamwa?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q813	Is it possible in your community for someone to get a confidential test to find out if they are infected with HIV? By confidential, I mean that no one will know the result if you don't want them to know it. Nanga nichosteka mumudzi wanu kuti winawache upimani mwa chisis mukuti adziwe ngati muli ndi AIDS? (Kuti chisisi sindifuna alietse ku ziwa)	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q814	*Restate confidentiality statement* I don't want to know the result, but have *you* ever had an HIV test? Sindi funa kuziwa zakupimidwa kwanga. Kodi ana kupimapo zoti aziwe kuti uli ndi AIDS?	YES 1 NO 2 NO RESPONSE 9	® **901**
Q815	Did you voluntarily undergo the AIDS test, or were you required to have the test? Kodi munazipeleka zoti akakupini ngati muli ndi AIDS? Kapena kulikomwe mufuna kuti akakupini)	Voluntary 1 Required 2 NO RESPONSE 9	

No.	Questions and filters	Coding categories	Skip to
Q816	Please do not tell me the result, but did you find out the result of your test? Napapa ta osandiuza zakupimidwa kwanga, kodi wafusa zakupimidwa kwa mzako?	YES 1 NO 2 NO RESPONSE 9	

That is the end of the questionnaire. Thank you very much for taking time to answer these questions. We appreciate your help. As I stated earlier we would also like to take some specimens to test for STDs (NOT HIV). Your name will never be asked and you will receive treatment. Are you willing to go with me ……..